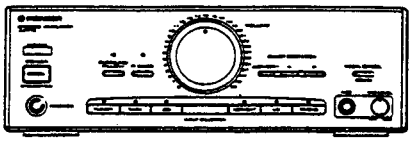
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2179

STEREO AMPLIFIER

A-P710

A-P510

A−P710 AND A−P510 HAVE THE FOLLOWING :

Type	Model		Power Requirement	Remarks
	A−P710	A−P510		
HE	O	O	AC 220V, 240V (switchable) *	
HB	O	O	AC 220V, 240V (switchable) *	
HEWZIW	O	O	AC 220V, 240V (switchable) *	
KUC	−	O	AC120V only	
SD	O	O	AC110V, 120V−127V, 220V, 240V (switchable)	

* Change the connection of the power transformer lead wire.

- **This manual is applicable to the A−P710/HE, HB, A−P510/HE and HB types.**
- **As to the A−P710/HB and A−P510/HB types, refer to page 40.**
- **As to the other types, refer to applicable service manual.**
- **These products are components of systems. As to the system composition, refer to the system manuals.**
- **Each of these products does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system components, otherwise damage may result.**

CONTENTS

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

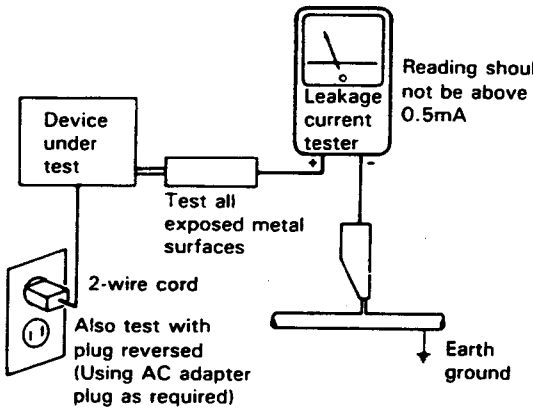
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designa-*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

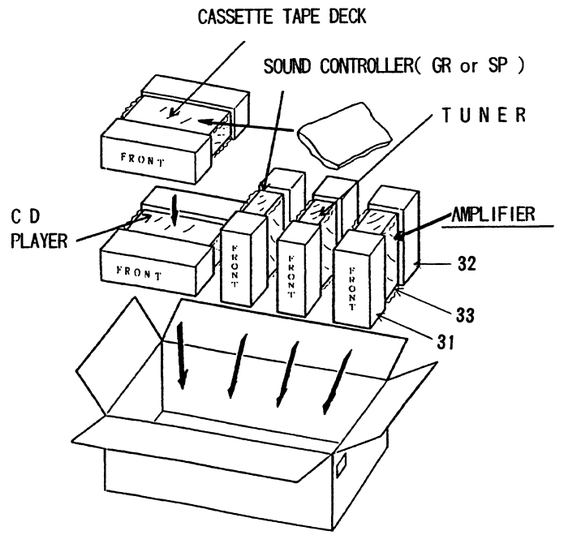
2.1 PARTS LIST OF EXTERIOR AND PACKING (A−P710/HE)

Mark	No.	Description	Parts No.
	1	VOLUME KNOB	AAB1181
	2	KNOB (MIC LEVEL)	AAB1190
	3	A/M BUTTON (VOCAL CANCEL)	AAD1841
	4	AI BUTTON (SMART OPERATION)	AAD1843
	5	P/P BUTTON (SURROUND/PILLOW, P.BASS, POWER)	AAD1844
	6	FUNCTION BUTTON (INPUT SELECTOR, MEMORY)	AAD1980
	7	FUNCTION LENS	AAK2007
	8	INDICATOR LENS	AAK2008
	9	FILTER (REMOTE SENSOR)	AAK2010
	10	MIC AMP ASSEMBLY	
⊙	11	DISPLAY ASSEMBLY	AWZ3136
	12	SP TERMINAL ASSEMBLY	
	13	TRANS CONNECT ASSEMBLY	
⊙	14	FUNCTION ASSEMBLY	AWZ3377
	15	H.P. ASSEMBLY	
	16	SCREW	ABA−222
	17	SCREW	ABA1018
	18	SCREW	ABA1024
	19	SCREW	ABA1056
	20	SCREW	ABA1074
	21	SCREW (STEEL)	ABA1095
	22	WASHER	ABE1020
⚠	23	AC POWER CORD	ADG1019
	24	CUSHION (RUBBER)	
	25	NYLON BINDER	
	26	COVER (CAPACITOR)	
	27	STRAIN RELIEF	AEC−882
	28	PCB SPACER	
	29	SPACER	
⊙	30	AF ASSEMBLY	AWZ3385
	31	FRONT PAD	AHA1325
	32	REAR PAD	AHA1326
	33	PACKING SHEET	AHG1175
	34	FRONT PANEL ASSEMBLY	AMB1785
	35	PCB MOULD	
	36	INSULATOR ASSEMBLY	AMR2148
	37	CHASSIS	
	38	REAR PANEL	
	39	BONNET (FE)	ANE1260
	40	PACK HOLDER	
	41	HEAT SINK HOLDER	
	42	HOLDER (JACK)	
	43	HOLDER (FAN)	
	44	HEAT SINK	
	45	TRANS PRIMARY ASSEMBLY	
	46	VOLUME ASSEMBLY	
	47	DC MOTOR	AXM1009
	48	SCREW	BBZ26P100FMC
	49	SCREW	BBZ30P060FZK
	50	SCREW	BBZ30P080FZK
	51	SCREW	BPZ26P080FMC
	52	NUT	NK90FUC
	53	FOOT (RUBBER)	REC−434
⚠	54	CKA (0.01/AC400V, C1)	ACG1003
⚠	55	FUSE (T1.25A, FU1)	AEK−510
⚠	56	FUSE (T2.5A, FU2)	AEK−509
⚠	57	FUSE (T2A, FU3)	AEK−017
⚠	58	FUSE (T2A, FU4)	AEK−017
⚠	59	FUSE (T2.5A, FU5)	AEK−403
⚠	60	FUSE (T2.5A, FU6)	AEK−403
⚠	61	POWER TRANSFORMER (T1)	ATS1332
	62	TRANS COVER ASSEMBLY	

2.2 PARTS LIST OF EXTERIOR AND PACKING (A−P510/HE)

Mark	No.	Description	Parts No.
	1	VOLUME KNOB	AAB1181
	2	.....	
	3	A/M BUTTON (MEMORY)	AAD1840
	4	AI BUTTON (SMART OPERATION)	AAD1842
	5	P/P BUTTON SURROUND & STEREO WIDE, POWER)	AAD1844
	6	FUNCTION BUTTON (INPUT SELECTOR)	AAD1979
	7	FUNCTION LENS	AAK2006
	8	INDICATOR LENS	AAK2008
	9	FILTER (REMOTE SENSOR)	AAK2010
	10	.....	
⊙	11	DISPLAY ASSEMBLY	AWZ3135
	12	SP TERMINAL ASSEMBLY	
	13	TRANS CONNECT ASSEMBLY	
⊙	14	FUNCTION ASSEMBLY	AWZ3375
	15	H.P. ASSEMBLY	
	16	SCREW	ABA−222
	17	SCREW	ABA1018
	18	SCREW	ABA1024
	19	SCREW	ABA1056
	20	SCREW	ABA1074
	21	SCREW (STEEL)	ABA1095
	22	WASHER	ABE1020
⚠	23	AC POWER CORD	ADG1019
	24	CUSHION (RUBBER)	
	25	NYLON BINDER	
	26	COVER (CAPACITOR)	
	27	STRAIN RELIEF	AEC−882
	28	PCB SPACER	
	29	SPACER	
⊙	30	AF ASSEMBLY	AWZ3383
	31	FRONT PAD	AHA1325
	32	REAR PAD	AHA1326
	33	PACKING SHEET	AHG1175
	34	FRONT PANEL ASSEMBLY	AMB1781
	35	PCB MOULD	
	36	INSULATOR ASSEMBLY	AMR2148
	37	CHASSIS	
	38	REAR PANEL	
	39	BONNET (FE)	ANE1260
	40	PACK HOLDER	
	41	HEAT SINK HOLDER	
	42	.....	
	43	HOLDER (FAN)	
	44	HEAT SINK	
	45	TRANS PRIMARY ASSEMBLY	
	46	VOLUME ASSEMBLY	
	47	DC MOTOR	AXM1009
	48	SCREW	BBZ26P100FMC
	49	SCREW	BBZ30P060FZK
	50	SCREW	BBZ30P080FZK
	51	SCREW	BPZ26P080FMC
	52	NUT	NK90FUC
	53	FOOT (RUBBER)	REC−434
⚠	54	CKA (0.01/AC400V, C1)	ACG1003
⚠	55	FUSE (T1.25A, FU1)	AEK−510
⚠	56	FUSE (T2.5A, FU2)	AEK−509
⚠	57	FUSE (T2A, FU3)	AEK−017
⚠	58	FUSE (T2A, FU4)	AEK−017
⚠	59	FUSE (T2.5A, FU5)	AEK−403
⚠	60	FUSE (T2.5A, FU6)	AEK−403
⚠	61	POWER TRANSFORMER (T1)	ATS1331
	62	TRANS COVER ASSEMBLY	

• Packing



A-P710, A-P510

• Exterior

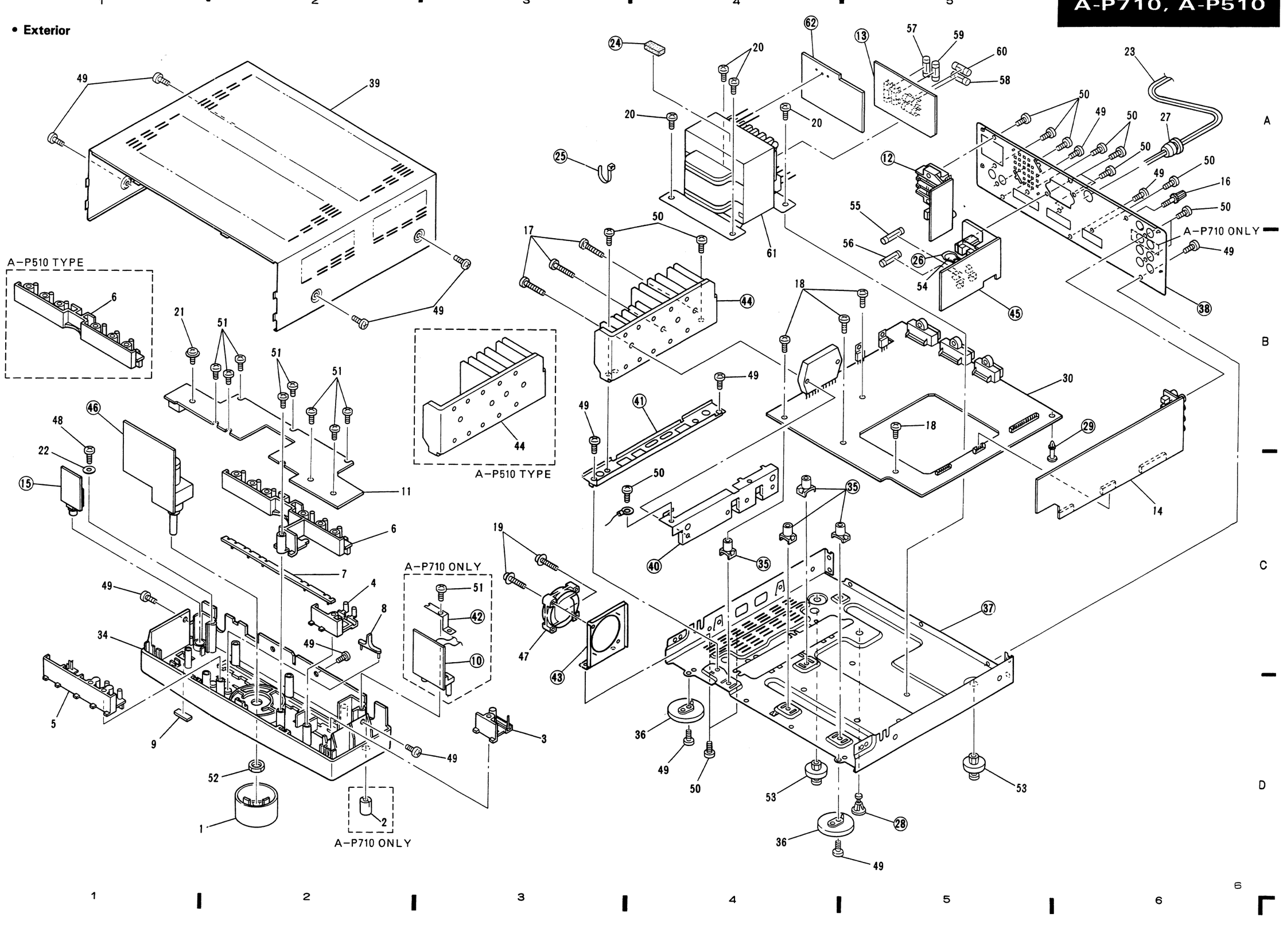
Parts No.

AXM1009
BBZ26P100FMC
BBZ30P060FZK
BBZ30P080FZK

BPZ26P080FMC
NK90FUC
REC-434
ACG1003
AEK-510

AEK-509
AEK-017
AEK-017
AEK-403
AEK-403

ATS1331



3. SCHEMATIC DIAGRAM AND P.C.BOARDS CONNECTION DIAGRAM

3.1 FOR A-P710

FUNCTION assembly(AWZ3377)

IC101:FUNCTION

IC102:BUFFER

IC101 LOGIC TABLE

FUNCTION	10pin	9pin
PHONO	L	L
LD	L	H
VCR/DAT	H	H
CD	H	L

IC101	MC14052BCP
IC102	M5218ALF
IC105	PD5144B
IC401	M5218AL
Q106	RN1201
Q107	RN2201
Q101. 102	2SC2878
D114. 115. D125. 126	1SS252

Q101. Q102: REC OUT MUTE

IC401:RIAA AMP

Q106. Q107:INVERTOR

DISPLAY assembly (AWZ3136)

Q125	RN2201	D105. 106	AEL1003	D136	AEL1101
Q103-105. Q124-126		D102. 103. 131. 133	AEL1058	D107. 109-111	AEL1108
Q127	2SA1048	D112. 113. 116	AEL1100	D124	1SS252

Q103-Q105. Q124-Q127: LED DRIVE

IC105:MICRO COMPUTER

MIC assembly

IC113:MIC AMP

IC113	RC4458DXP
Q122	RN2203
Q123	2SC2878

Q122. Q123:MIC MUTE

AF assembly(AWZ3385)

Q120:CONSTANT VOLTAGE REGULATOR

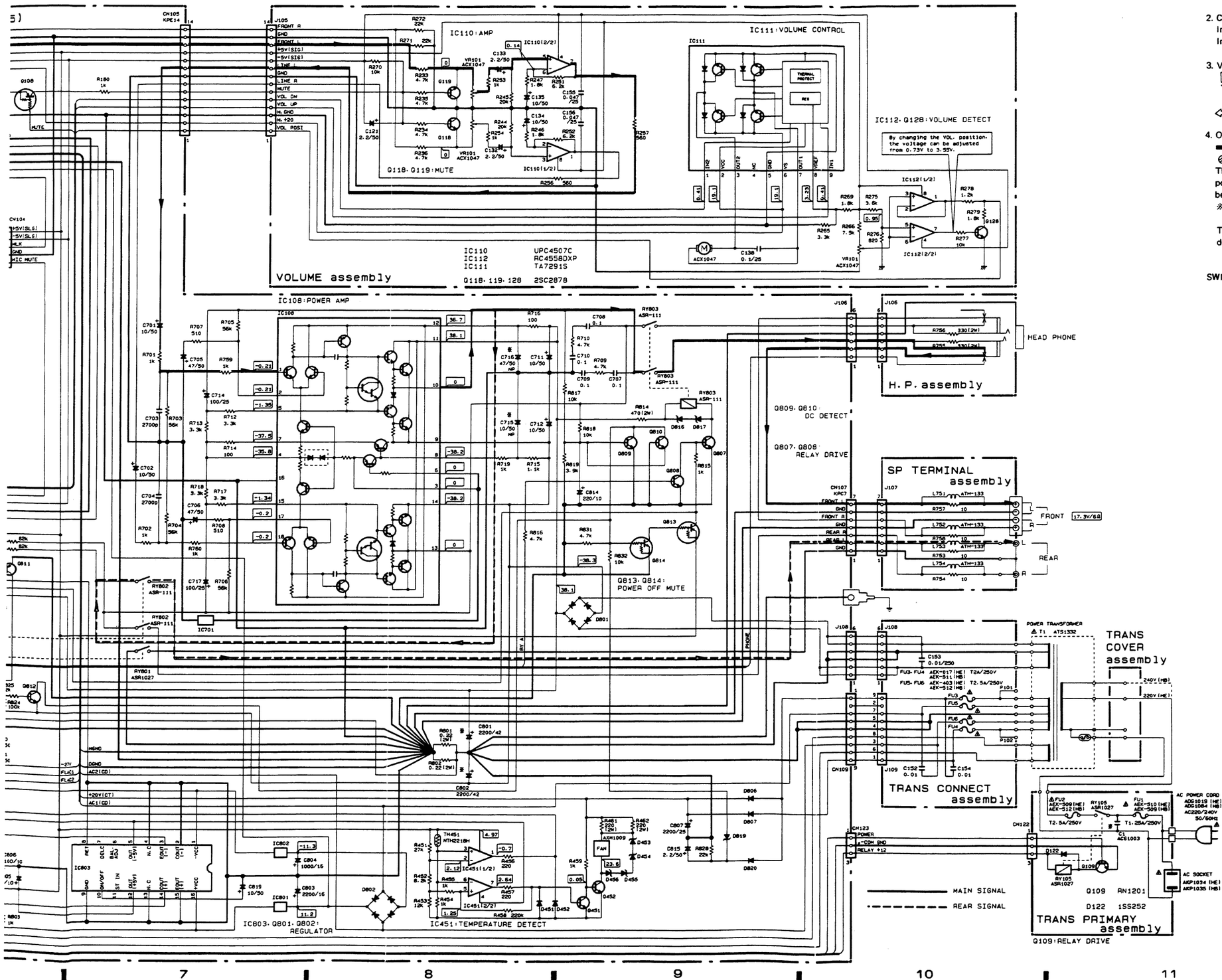
Q108:INVERTOR

Q804:MATRIX ON/OFF RELAY DRIVE

Q805. Q806:PILLOW ON/OFF RELAY DRIVE

Q111. Q112:OVER LOAD

IC801. 802	ICP-N38	D801	RBV602
IC803	M5290P	D802	RB152
IC108	STK4172-2GP	D814-817	RD12ESB3
IC451	NJM4558S-X	D123	RD20ESB
IC701	ICP-N25	D819	RD6. 2ESB
Q108. 813	RN2203	D812. 813	RD6. 2ESB3
Q801	2SB1274	D811	RD7. 5ESB
Q451. 804-810. Q812. 814	2SC2458	D120. 121. 201. D451. 452. 818. 820	1SS252
Q802	2SD1913	D806. 807	10E2FD
Q120. 452	2SD438	D453-456	RD3. 0ESB2
Q811	2SA1048	D818	1SS252



1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
: Signal voltage at(40W + 40W 8Ω)output,DIN(1kHz).
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

DISPLAY	assembly
S101	PHONO
S102	LD
S103	VIDEO
S104	TAPE
S105	TUNER
S106	CD
S109	POWER
S110	AI A
S111	P·BASS
S112	SURROUND
S113	AUDITION
S114	MEMORY
S115	AI B

Line Voltage Selection
(For HE, HB and HEWZIW types)

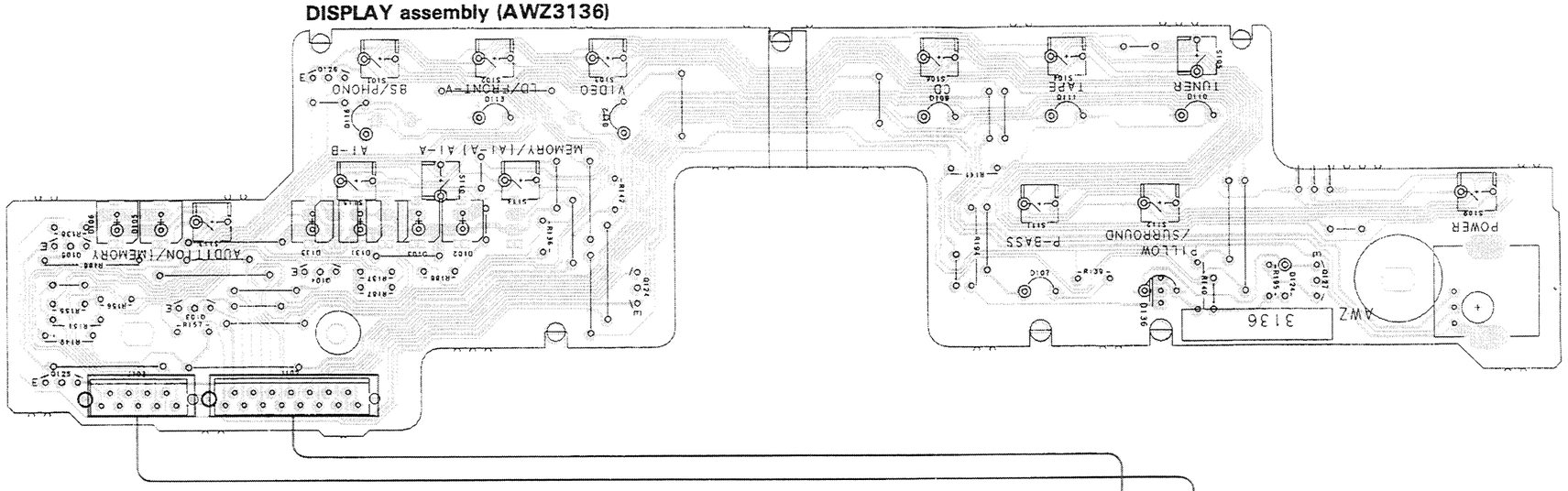
Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

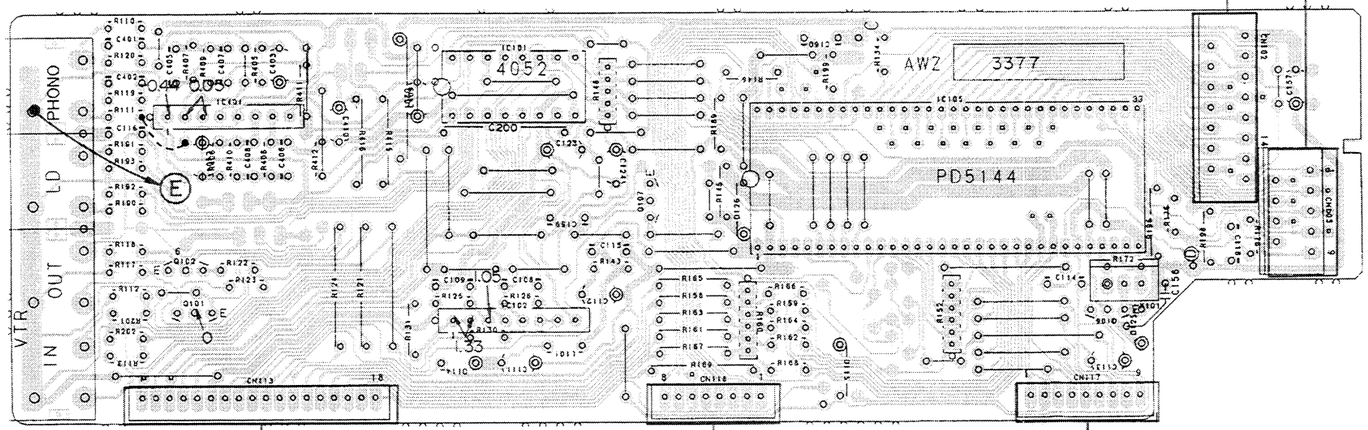
Part No.	Description
AAX-193	220V label
AAX-192	240V label

——— 220V
- - - - - - - - 240V

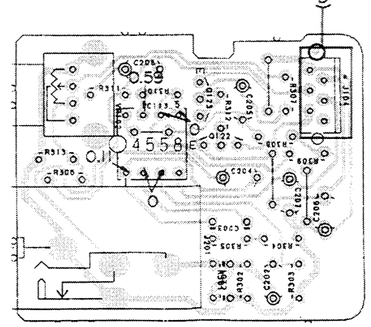
DISPLAY assembly (AWZ3136)



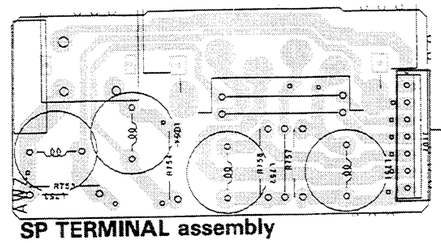
IC401 Q102 Q101 | IC101 IC102 | Q107 | IC105 | Q106



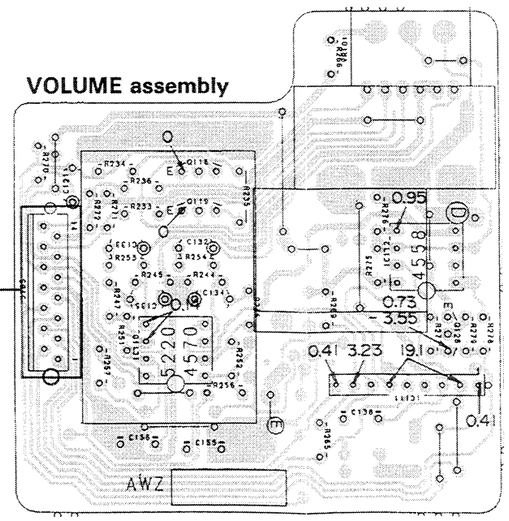
FUNCTION assembly (AWZ3377)



MIC AMP assembly

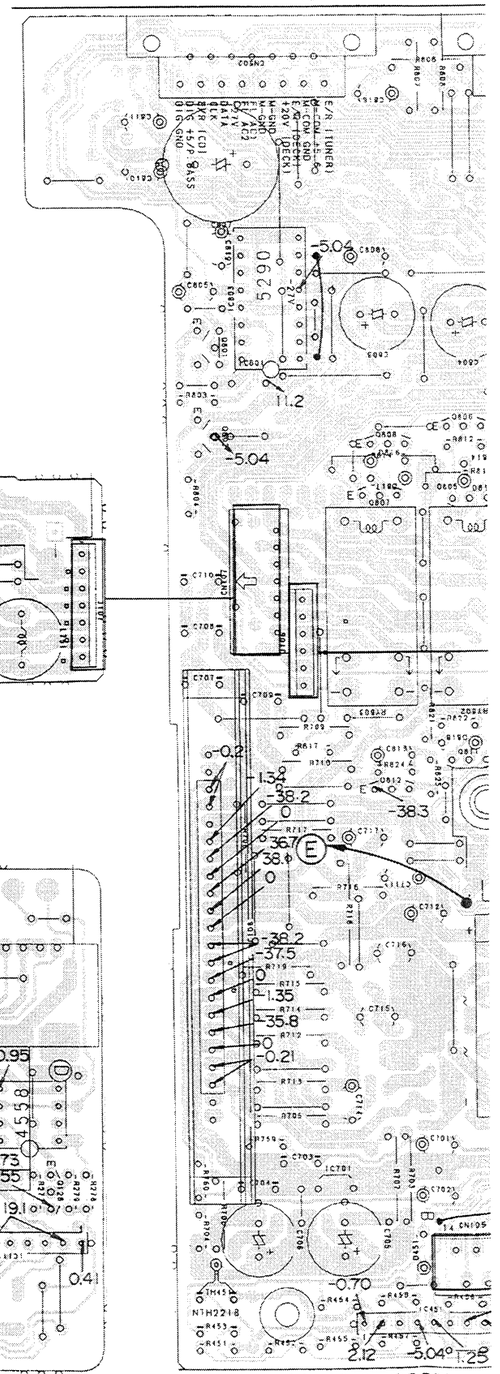


SP TERMINAL assembly



VOLUME assembly

Q801 IC803
Q802 IC801
IC108
Q804-Q8
Q812 Q811
IC701 IC451



AF assembly (AWZ3385)

NOTE

1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E C	E C or E C	Transistor
Q215	or	Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⊖ (double circles) shows negative terminal.
4. The diode terminal marked with ⊖ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

H.P. assembly

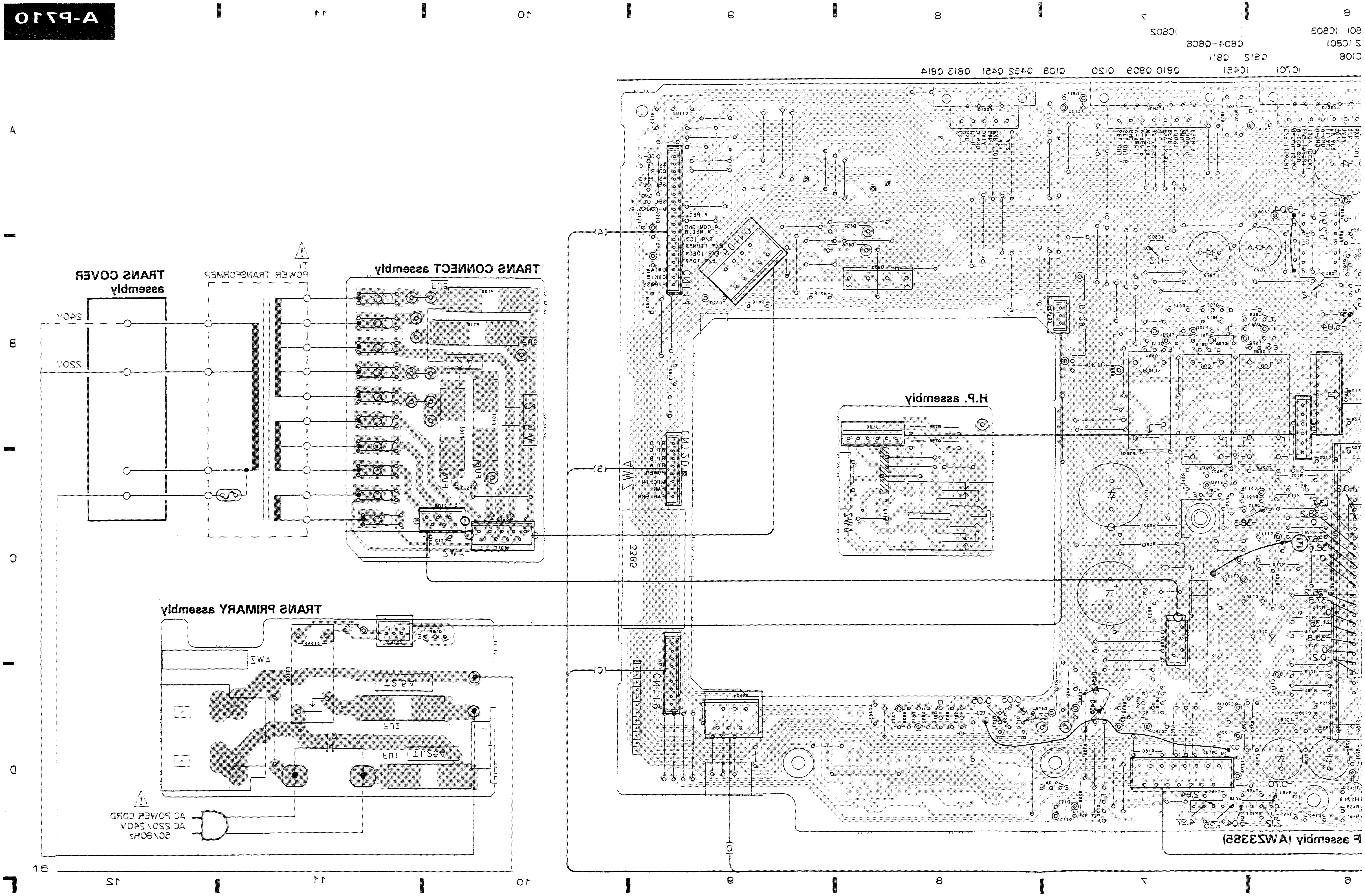
TRANS CONNECT assembly

TRANS COVER assembly

TRANS PRIMARY assembly

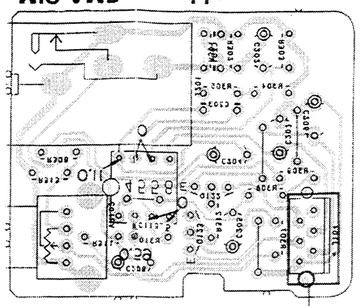
F assembly (AWZ3385)

AC POWER CORD
AC 220/240V
50/60Hz

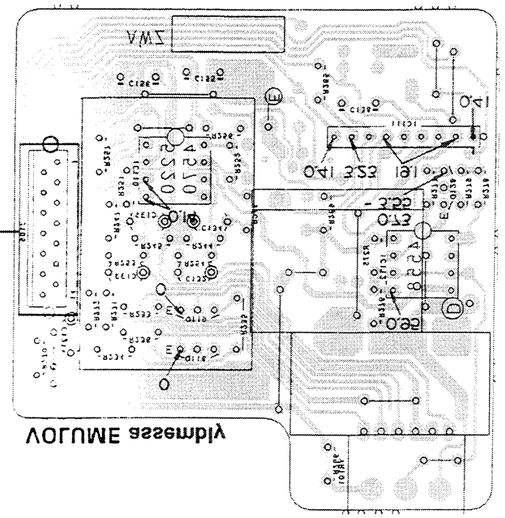


TRANS COVER assembly
T1 POWER TRANSFORMER
TRANS CONNECT assembly
TRANS PRIMARY assembly
H.P. assembly
AC POWER CORD AC 220/240V 50/60Hz
240V
220V
F assembly (AWZ3385)
3385

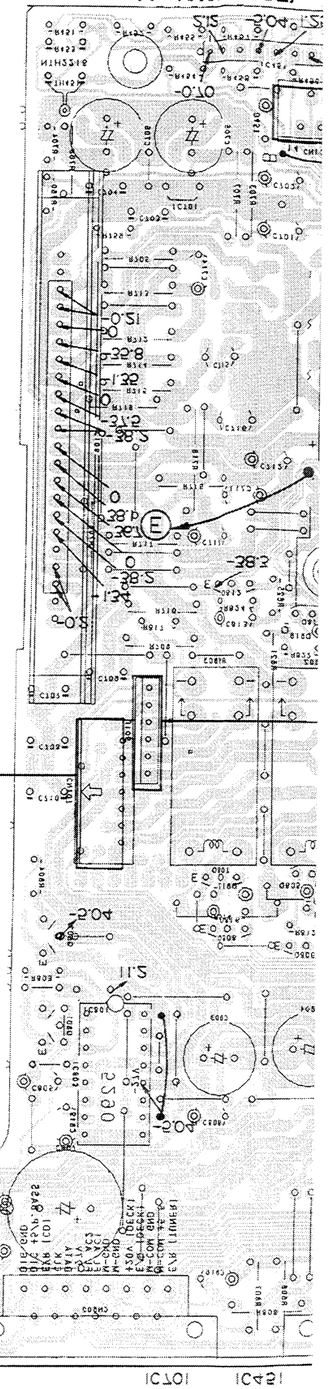
MIC AMP assembly



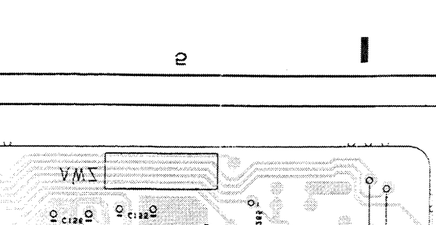
VOLUME assembly



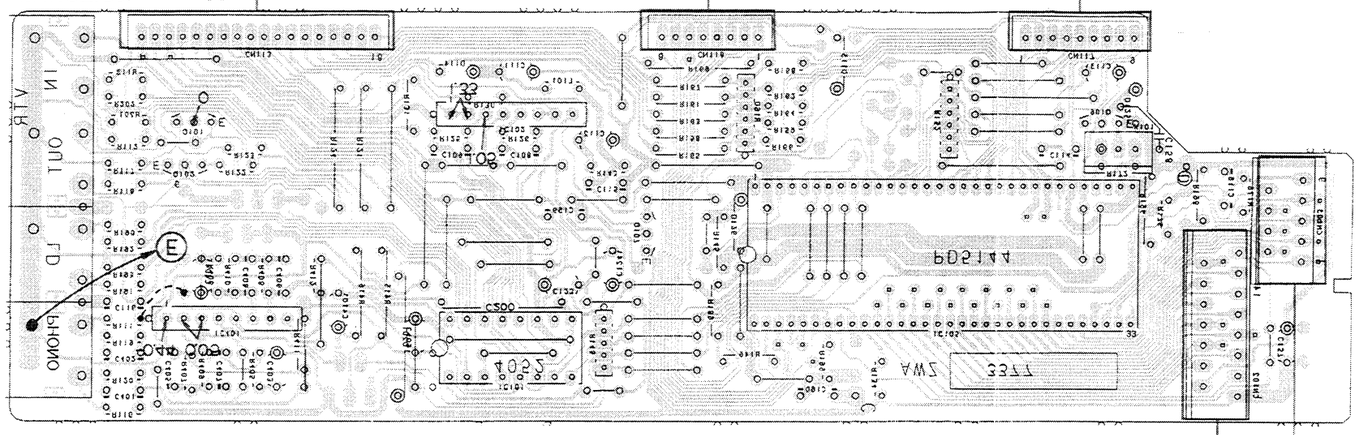
AT assembly (AWZ338S)



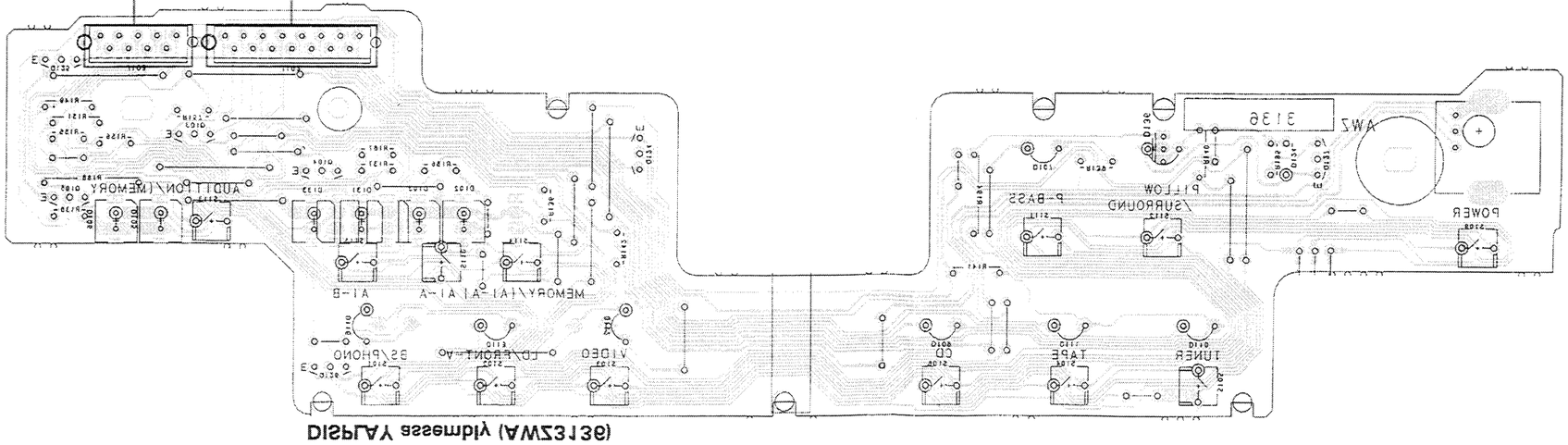
SP TERMINAL assembly

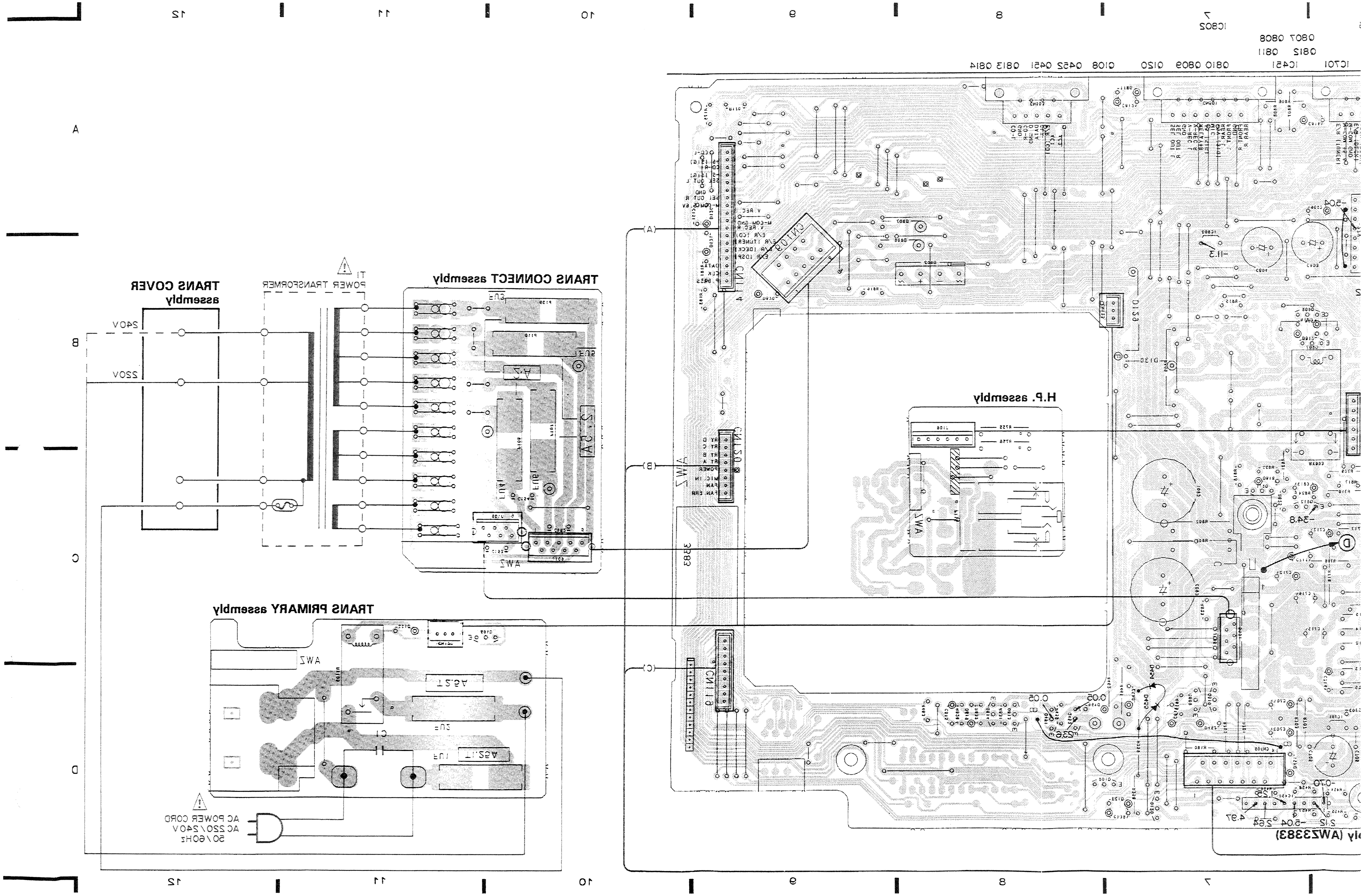


FUNCTION assembly
(AWZ337)

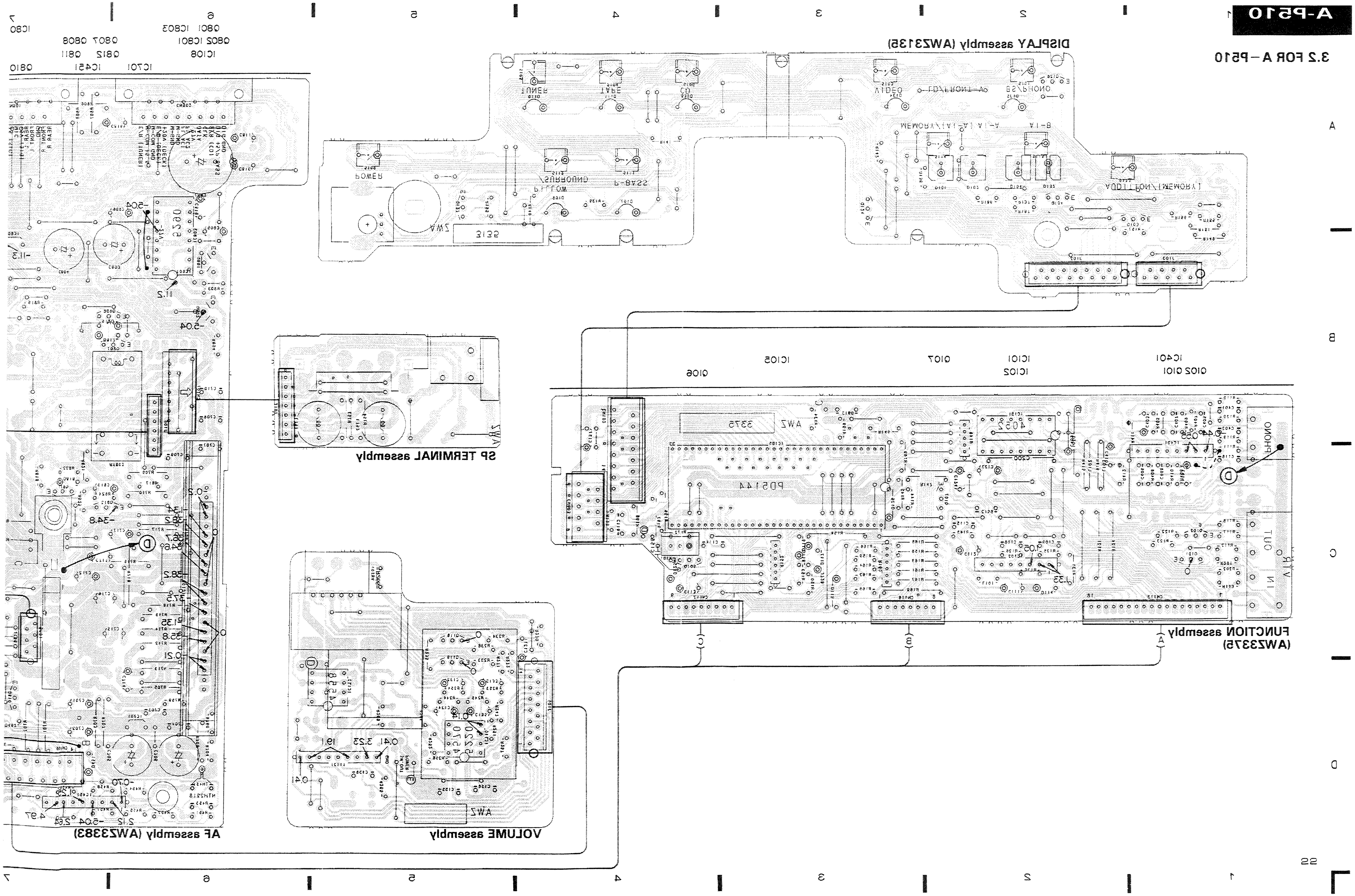


DISPLAY assembly (AWZ316)




TRANS COVER assembly
T1 POWER TRANSFORMER
TRANS CONNECT assembly
H.P. assembly
TRANS PRIMARY assembly
AC POWER CORD
AC 220/240V
50/60Hz
240V
220V
CN109
CN120
CN110
AWZ
3383
(AWZ3383)
IC701 IC451 Q810 Q809 Q120 Q108 Q452 Q451 Q813 Q814
Q812 Q811
Q807 Q808
IC802

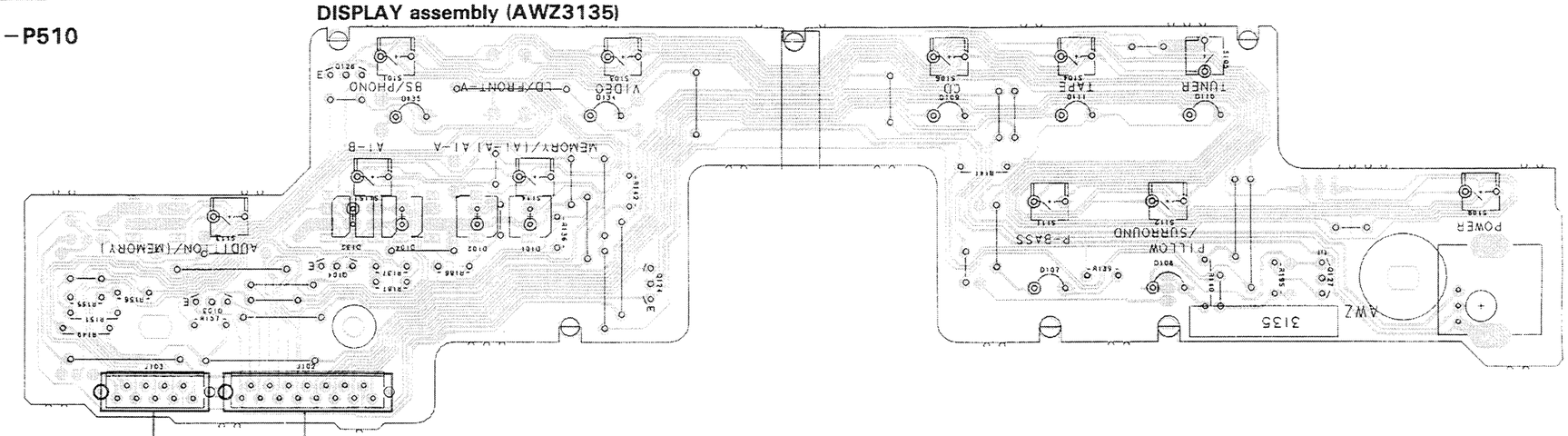
3.2 FOR A-P510

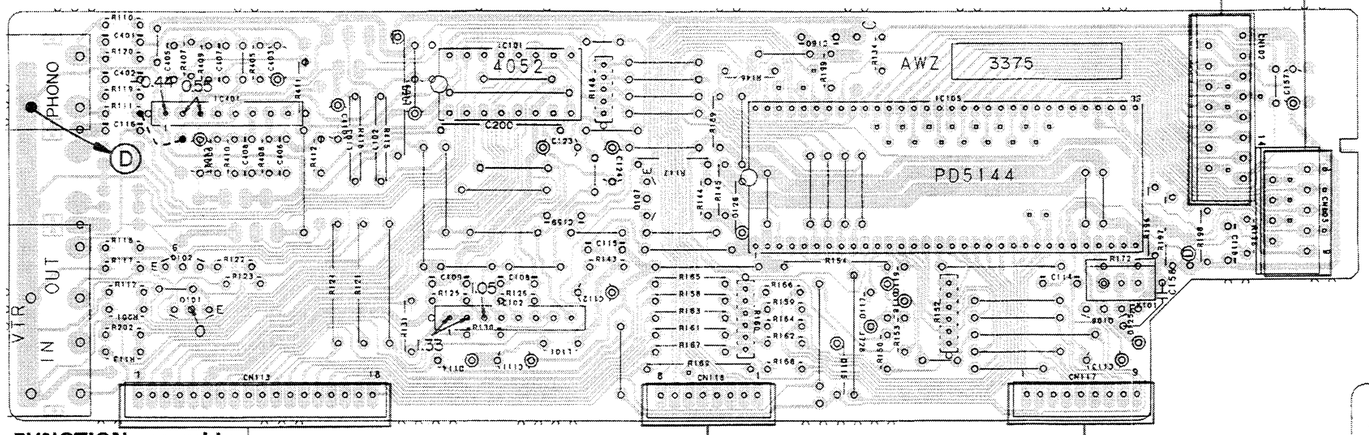


DISPLAY assembly (AWZ3135)
SP TERMINAL assembly
FUNCTION assembly (AWZ3375)
VOLUME assembly
AF assembly (AWZ3383)
POWER
SURROUND
P-BASS
TUNER
TAPE
CD
VIDEO
PHONO
PD5144

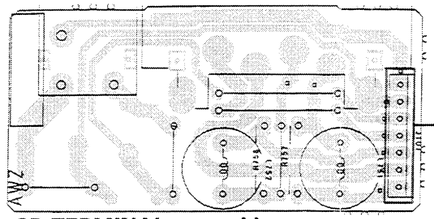
3.2 FOR A−P510

DISPLAY assembly (AWZ3135)

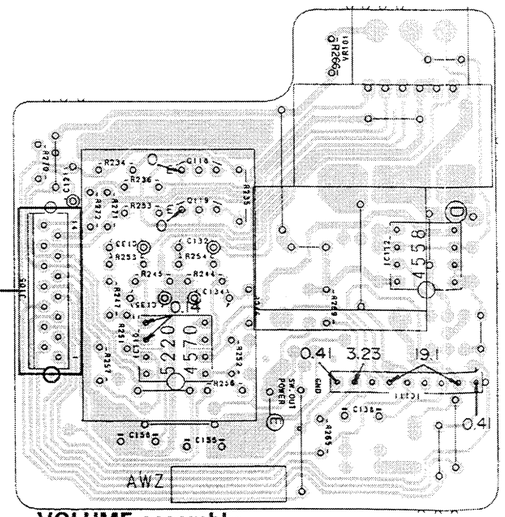




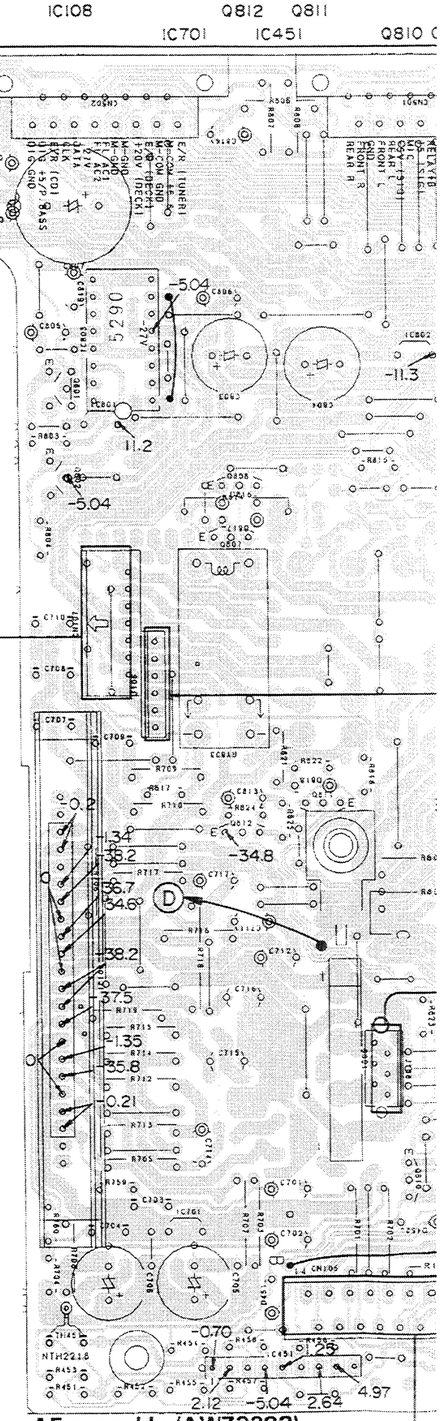
FUNCTION assembly (AWZ3375)



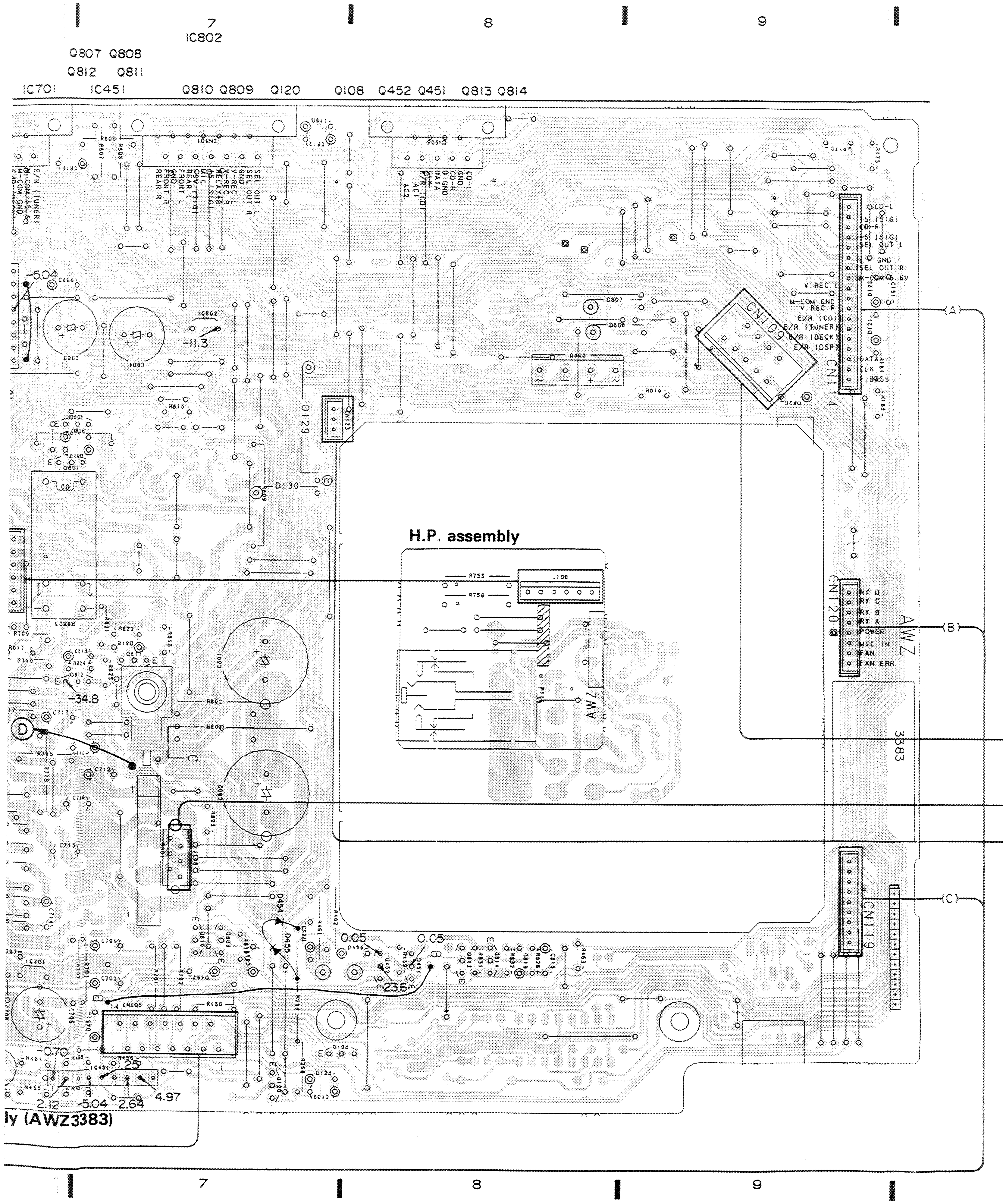
SP TERMINAL assembly



VOLUME assembly



AF assembly (AWZ3383)



NOTE

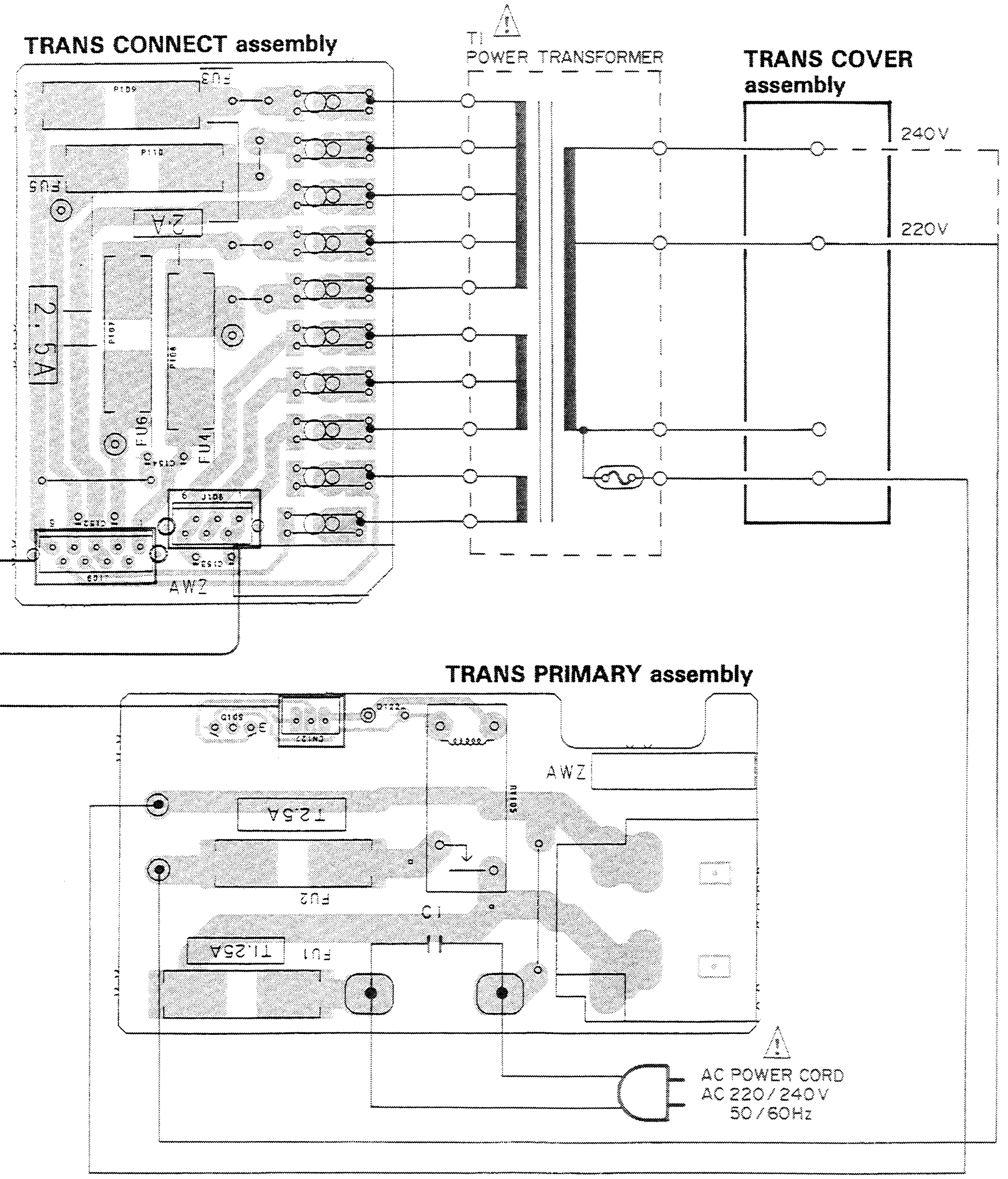
1. This P.C.B connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

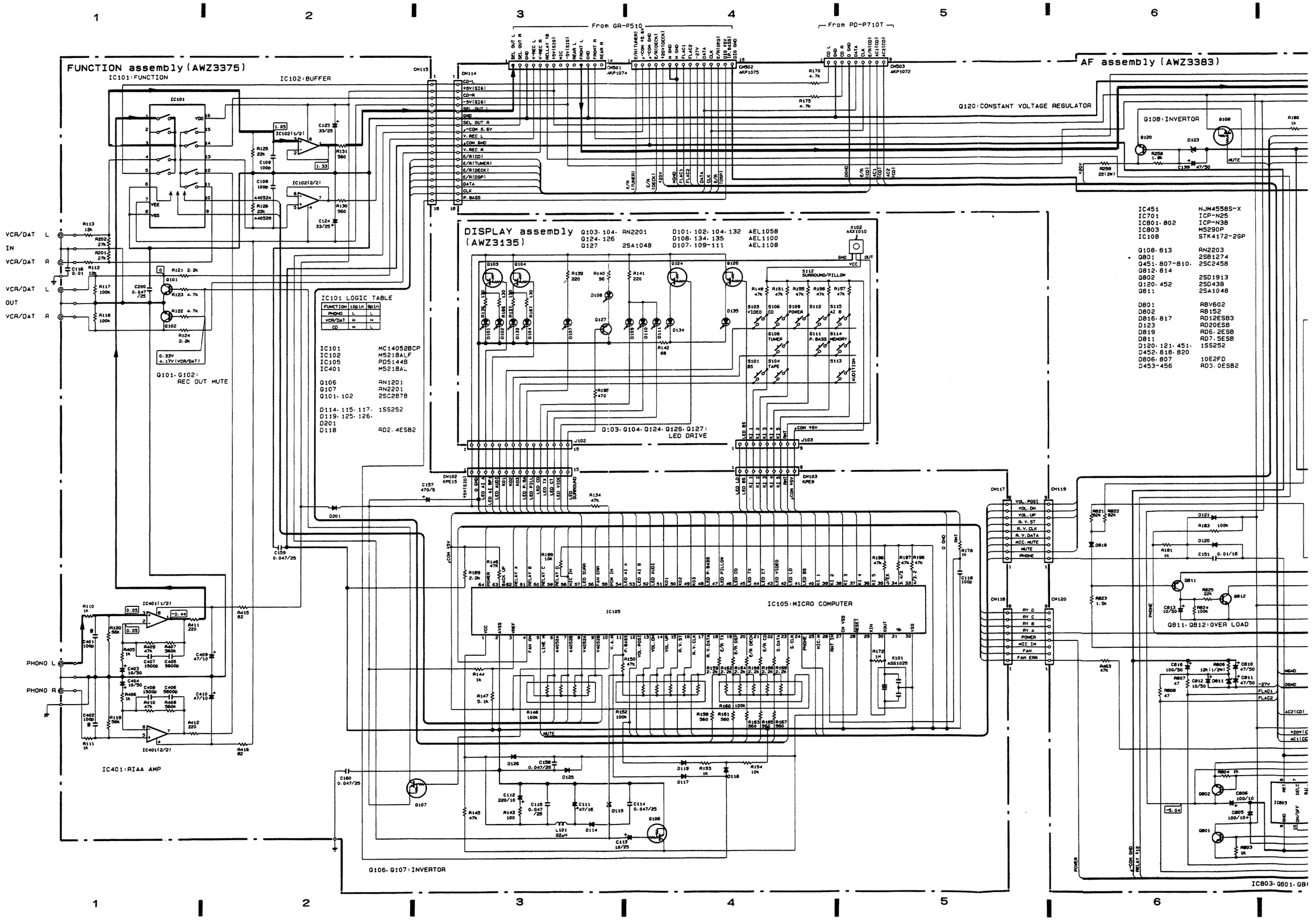
P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
Q504 E		Transistor
Q215		Radiator type transistor
D203	D203	Diode
R237	R237	Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

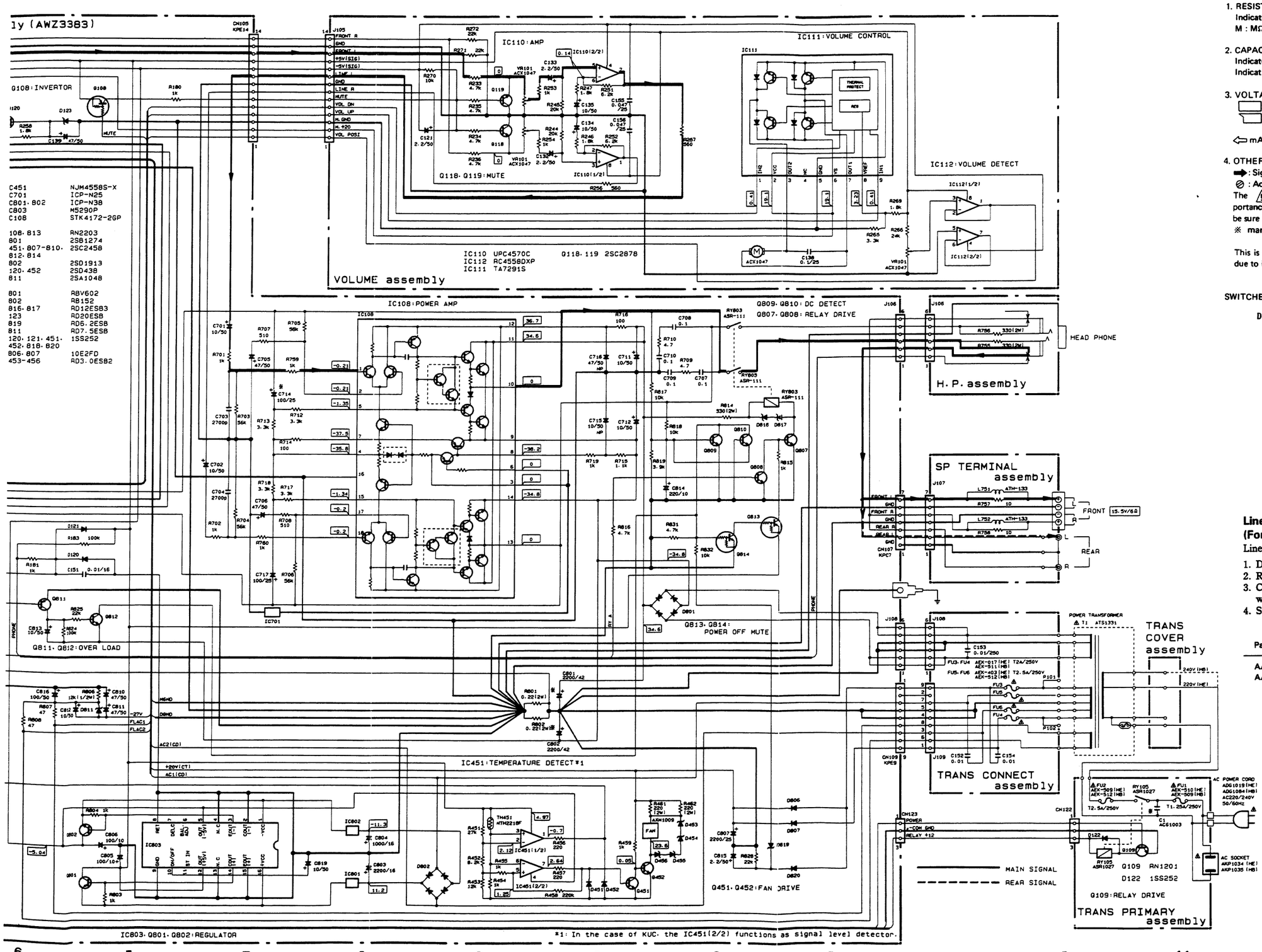
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ◎(double circles) shows negatine termianl.
4. The diode terminal marked with ◎(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.




FUNCTION assembly (AWZ3375)
IC101:FUNCTION
IC102:BUFFER
IC101 LOGIC TABLE
FUNCTION 10pin 9pin
PHONO L L
VCR/DAT H H
CD H L
IC101 MC14052BCP
IC102 M5218ALF
IC105 PD5144B
IC401 M5218AL
Q106 RN1201
Q107 RN2201
Q101.102 2SC2878
D114.115.117.119.125.126.D201 1SS252
D118 RD2.4ESB2
Q101.Q102: REC OUT MUTE
IC401:RIAA AMP
From GR-P510
From PD-P710T
AF assembly (AWZ3383)
Q120:CONSTANT VOLTAGE REGULATOR
Q108:INVERTOR
DISPLAY assembly (AWZ3135)
Q103.104.124.126.Q127 RN2201
Q127 2SA1048
D101.102.104.132 AEL1058
D108.134.135 AEL1100
D107.109-111 AEL1108
Q103.Q104.Q124.Q126.Q127: LED DRIVE
IC105:MICRO COMPUTER
Q106.Q107:INVERTOR
Q811.Q812:OVER LOAD
IC803.Q801.Q8
IC451 NJM4558S-X
IC701 ICP-N25
IC801.802 ICP-N38
IC803 M5290P
IC108 STK4172-26P
Q108.813 RN2203
Q801 2SB1274
Q451.807-810. 2SC2458
Q812.814
Q802 2SD1913
Q120.452 2SD438
Q811 2SA1048
D801 RBV602
D802 RB152
D816.817 RD12ESB3
D123 RD20ESB
D819 RD6.2ESB
D811 RD7.5ESB
D120.121.451. 1SS252
D452.818.820
D806.807 10E2FD
D453-456 RD3.0ESB2



1. RESISTORS:
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
:Signal voltage at(35W + 35W 8Ω)output,DIN(1kHz).
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦ mA : DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

DISPLAY assembly

S101	PHONO
S103	VIDEO
S104	TAPE
S105	TUNER
S106	CD
S109	POWER
S111	P·BASS
S112	SURROUND
S113	MEMORY
S114	AI A
S115	AI B

Line Voltage Selection
(For HE, HB and HEWZIW types)

Line voltage can be changed with following steps.

1. Disconnect the AC power cord.
2. Remove the Bonnet case.
3. Change the connection of the power transformer lead wire.
4. Stick the line voltage label on the rear panel.

Part No.	Description
AAX-193	220V label
AAX-192	240V label

——— 220V
- - - - - - - - - 240V

4. PCB 's PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

4.1 FOR A−P710/HE TYPE

Mark No.	Description	Parts No.
MIC AMP ASSEMBLY		
SEMICONDUCTORS		
IC113	OP−AMP IC	RC4558DXP
Q122	TRANSISTOR	RN2203
Q123	TRANSISTOR	2SC2878
CAPACITORS		
C201	CERAMIC CAPACITOR	CKDYB332K50
C202	ELECTROLYTIC CAPACIT	CEJA0R1M50
C203	CERAMIC CAPACITOR	CKDYB331K50
C204, 205	ELECTROLYTIC CAPACIT	CEJA100M25
C206, 207	CERAMIC CAPACITOR	CKDYX473M25
C208	ELECTROLYTIC CAPACIT	CEJA100M25
RESISTORS		
VR102	VARIABLE (10k−X1)	ACS1025
	Other resistors	RD1/8PM□□□J
OTHERS		
	JACK (MIC)	AKN1017
⊙ DISPLAY ASSEMBLY (AWZ3136)		
SEMICONDUCTORS		
Q103−105	TRANSISTOR	RN2201
Q124−126	TRANSISTOR	RN2201
Q127	TRANSISTOR	2SA1048
D102, 103	LED	AEL1058
D105, 106	LED	AEL1003
D107, 109	LED (RED)	AEL1108
D110, 111	LED (RED)	AEL1108
D112, 113	LED	AEL1100
D116	LED	AEL1100
D124	DIODE	1SS252
D131, 133	LED	AEL1058
D136	LED (RED, AMBER)	AEL1101
SWITCHES		
S101−106	SWITCH	ASG1034
S109−115	SWITCH	ASG1034
RESISTORS		
	All resistors	RD1/8PM□□□J
OTHERS		
	REMOTE RECEIVER UNIT	AXX1010
SP TERMINAL ASSEMBLY		
COILS		
L751−754	COIL	ATH−133
RESISTORS		
	All resistors	RD1/4PMFL100J
OTHERS		
	PIN JACK (2P)	AKB1146
	SPEAKER TERMINAL 4P	AKE1026

Mark No.	Description	Parts No.
TRANS CONNECT ASSEMBLY		
CAPACITORS		
C152	MYLOR FILM CAPACITOR	CQMA103K50
C153	MYLOR FILM CAPACITOR	CQMA103K250
C154	MYLOR FILM CAPACITOR	CQMA103K50
⊙ FUNCTION ASSEMBLY (AWZ3377)		
SEMICONDUCTORS		
IC101	LOGIC IC	MC14052BCP
IC102	OP−AMP IC	M5218ALF
IC105	AMP CONTROL μ−COM.	PD5144B
IC401	OP−AMP IC	M5218AL
Q101, 102	TRANSISTOR	2SC2878
Q106	TRANSISTOR	RN1201
Q107	TRANSISTOR	RN2201
D114, 115	DIODE	1SS252
D125, 126	DIODE	1SS252
COIL		
L101	AXIAL INDUCTOR	LAU220K
CAPACITORS		
C108, 109	CERAMIC CAPACITOR	CCDSL101J50
C111	ELECTROLYTIC CAPACIT	CEJA470M16
C112	ELECTR.CAPACITOR	CEAS221M10
C113	ELECTROLYTIC CAPACIT	CEJA100M25
C114−116	CERAMIC CAPACITOR	CKDYX473M25
C118	CERAMIC CAPACITOR	CCDSL101J50
C123, 124	ELECTROLYTIC CAPACIT	CEJA330M25
C157	ELECTROLYTIC CAPACIT	CEAS471M6
C158−160	CERAMIC CAPACITOR	CKDYX473M25
C200	CERAMIC CAPACITOR	CKDYX473M25
C401, 402	CERAMIC CAPACITOR	ACG1017
C403, 404	ELECTR.CAPACITOR	CEAS100M50
C405, 406	CERAMIC CAPACITOR	CKDYB562K50
C407, 408	CERAMIC CAPACITOR	CKDYB152K50
C409, 410	ELECTR.CAPACITOR	CEAS470M10
RESISTORS		
R148	RESISTOR ARRAY (10k)	RA4T104J
R152	RESISTOR ARRAY (100k)	RA5T104J
R160	RESISTOR ARRAY (100k)	RA5T104J
	Other resistors	RD1/8PM□□□J

Mark No.	Description	Parts No.
OTHERS		
CN102	CONNECTOR (15P)	KPE15
CN103	CONNECTOR (9P)	KPE9
	PIN JACK (4P)	AKB1101
	PIN JACK (4P)	AKB1124
X101	CERAMIC RESONATOR	ASS1025
H.P. ASSEMBLY		
RESISTORS		
R755, 756	METAL OXIDE RESISTOR	RS2LMF331J
OTHERS		
CN	JACK	AKN1025
⊙ AF ASSEMBLY (AWZ3385)		
SEMICONDUCTORS		
IC108	AUDIO IC	STK4172−2GP
IC451	OP−AMP IC	NJM4558S−X
IC701	IC PROTECTOR	ICP−N25
IC801, 802	IC PROTECTOR	ICP−N38
IC803	REGURATOR IC	M5290P
Q108	TRANSISTOR	RN2203
Q120	TRANSISTOR	2SD438
Q451	TRANSISTOR	2SC2458
Q452	TRANSISTOR	2SD438
Q801	TRANSISTOR	2SB1274
Q802	TRANSISTOR	2SD1913
Q804−810	TRANSISTOR	2SC2458
Q811	TRANSISTOR	2SA1048
Q812	TRANSISTOR	2SC2458
Q813	TRANSISTOR	RN2203
Q814	TRANSISTOR	2SC2458
D120, 121	DIODE	1SS252
D123	ZENER DIODE	RD20ESB
D201	DIODE	1SS252
D451, 452	DIODE	1SS252
D453−456	ZENER DIODE	RD3.0ESB2
D801	DIODE	RBV602
D802	DIODE	RB152
D806, 807	DIODE	10E2FD
D811	ZENER DIODE	RD7.5ESB
D812. 813	ZENER DIODE	RD6.2ESB3
D814−817	ZENER DIODE	RD12ESB3
D818	DIODE	1SS252
D819	ZENER DIODE	RD6.2ESB
D820	DIODE	1SS252

Mark No.	Description	Parts No.
RELAIES		
RY801	RELAY	ASR1027
RY802, 803	RELAY	ASR−111
CAPACITORS		
C139	ELECTR.CAPACITOR	CEAS470M50
C151	CERAMIC CAPACITOR	CKPUYY103M16
C701, 702	ELECTR.CAPACITOR	CEHAQ100M50
C703, 704	CERAMIC CAPACITOR	CKDYB272K50
C705, 706	ELECTROLYTIC CAPACIT	CEHAQ470M50
C707−710	MYLOR FILM CAPACITOR	CQMA104K50
C711, 712	ELECTROLYTIC CAPACIT	CEHAQ100M50
C714	ELECTROLYTIC CAPACIT	CEHAQ101M25
C715	ELECTR.CAPACITOR	ACH1141
C716	ELECTROLYTIC CAPACIT	ACH1143
C717	ELECTROLYTIC CAPACIT	CEHAQ101M25
C801, 802	ELECTROLYTIC CAPACIT	ACH1140
C803	ELECTR.CAPACITOR	CEAS222M16
C804	ELECTR.CAPACITOR	CEAS102M16
C805, 806	ELECTROLYTIC CAPACIT	CEHAQ101M10
C807	ELECTROLYTIC CAPACIT	CEHAQ222M25
C810, 811	ELECTROLYTIC CAPACIT	CEHAQ470M50
C812	ELECTR.CAPACITOR	CEAS100M50
C813	ELECTROLYTIC CAPACIT	CEHAQ100M50
C814	ELECTR.CAPACITOR	CEAS221M10
C815	ELECTR.CAPACITOR	CEAS2R2M50
C816	ELECTR.CAPACITOR	CEAS101M50
C819	ELECTR.CAPACITOR	CEAS100M50
RESISTORS		
R258	CARBON FILM RESISTOR	RD1/4PM182J
R259	METAL OXIDE RESISTOR	RS2LMF220J
R451	METALFILM RESISTER	RN1/4PC2702F
R452	METALFILM RESISTER	RN1/4PC8201F
R453	METALFILM RESISTER	RN1/4PC1202F
R454	METALFILM RESISTER	RN1/4PC1001F
R461, 462	METAL OXIDE RESISTOR	RS2LMF221J

Mark No.	Description	Parts No.
R705, 706	CARBON FILM RESISTOR	RD1/4PM563J
R707, 708	CARBON FILM RESISTOR	RD1/4PM511J
R709, 710	CARBON FILM RESISTOR	RD1/4PMFL4R7J
R712, 713	CARBON FILM RESISTOR	RD1/2PM332J
R714	CARBON FILM RESISTOR	RD1/4PMFL101J
R715	CARBON FILM RESISTOR	RD1/4PM112J
R716	CARBON FILM RESISTOR	RD1/4PMFL101J
R717, 718	CARBON FILM RESISTOR	RD1/2PM332J
R719	CARBON FILM RESISTOR	RD1/4PMFL102J
R801, 802	METAL OXIDE RESISTOR	RS2LMFR22J
R806	CARBON FILM RESISTOR	RD1/2PMFL123J
R807, 808	FUSIBLE RESISTOR	RFA1/4PS470J
R809	METAL OXIDE RESISTOR	RS3LMF471J
R811	METAL OXIDE RESISTOR	RS2LMF471J
R814	METAL OXIDE RESISTOR	RS2LMF471J
	Other resistors	RD1/8PM□□□J
OTHERS		
CN104	CONNECTOR (6P)	KPE6
CN105	CONNECTOR (14P)	KPE14
CN107	CONNECTOR (7P)	KPC7
CN109	CONNECTOR (9P)	KPE9
CN501	SOCKET (14P)	AKP1074
CN502	SOCKET (15P)	AKP1075
CN503	SOCKET (9P)	AKP1072
TH451	THERMISTOR	NTH2218F

TRANS PRIMARY ASSEMBLY

SEMICONDUCTORS		
Q109	TRANSISTOR	RN1201
D122	DIODE	1SS252
RELAY		
RY105	RELAY	ASR1027
OTHERS		
⚠	AC SOCKET (1−P)	AKP1034

Mark No.	Description	Parts No.
VOLUME ASSEMBLY		
SEMICONDUCTORS		
IC110	IC	UPC4570C
IC111	MECHANISM DRIVER IC	TA7291S
IC112	OP−AMP IC	RC4558DXP
Q118, 119	TRANSISTOR	2SC2878
Q128	TRANSISTOR	2SC2878
CAPACITORS		
C121	ELECTROLYTIC CAPACIT	CEHAQ2R2M50
C132, 133	ELECTROLYTIC CAPACIT	CEHAQ2R2M50
C134, 135	ELECTR.CAPACITOR	CEHAQ100M50
C138	CERAMIC CAPACITOR	CKDYX104M25
C155, 156	CERAMIC CAPACITOR	CKDYX473M25
RESISTORS		
VR101	VR	ACX1047
	Other resistors	RD1/8PM□□□J

TRANS COVER ASSEMBLY

No parts are supplied with the TRANS COVER Assembly.

4.2 FOR A−P510/HE TYPE

Mark No.	Description	Parts No.
⊙ DISPLAY ASSEMBLY (AWZ3135)		
SEMICONDUCTORS		
Q103, 104	TRANSISTOR	RN2201
Q124, 126	TRANSISTOR	RN2201
Q127	TRANSISTOR	2SA1048
D101, 102	LED	AEL1058
D104	LED	AEL1058
D107	LED (RED)	AEL1108
D108	LED	AEL1100
D109−111	LED (RED)	AEL1108
D132	LED	AEL1058
D134, 135	LED	AEL1100
SWITCHES		
S101	SWITCH	ASG1034
S103−106	SWITCH	ASG1034
S109	SWITCH	ASG1034
S111−115	SWITCH	ASG1034
RESISTORS		
R186, 187	CARBON FILM RESISTOR	RD1/4PM131J
	Other resistors	RD1/8PM□□□J
OTHERS		
	REMOTE RECEIVER UNIT	AXX1010

SP TERMINAL ASSEMBLY

COILS		
L751, 752	COIL	ATH−133
RESISTORS		
R757, 758	CARBON FILM RESISTOR	RD1/4PMFL100J
OTHERS		
	PIN JACK (2P)	AKB1146
	SPEAKER TERMINAL 4−P	AKE1026

TRANS CONNECT ASSEMBLY

CAPACITORS		
C152	MYLOR FILM CAPACITOR	CQMA103K50
C153	MYLOR FILM CAPACITOR	CQMA103K250
C154	MYLOR FILM CAPACITOR	CQMA103K50

4. PCB 's PARTS LIST

NOTES:

- *Parts without part number cannot be supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	*56 × 10¹*	*561*	*RD1/4PS 5 6 1 J*
47kΩ	*47 × 10³*	*473*	*RD1/4PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621*	*RN1/4SR 5 6 2 1 F*

4.1 FOR A−P710/HE TYPE

Mark No.	Description	Parts No.
MIC AMP ASSEMBLY		
SEMICONDUCTORS		
IC113	OP−AMP IC	RC4558DXP
Q122	TRANSISTOR	RN2203
Q123	TRANSISTOR	2SC2878
CAPACITORS		
C201	CERAMIC CAPACITOR	CKDYB332K50
C202	ELECTROLYTIC CAPACIT	CEJA0R1M50
C203	CERAMIC CAPACITOR	CKDYB331K50
C204, 205	ELECTROLYTIC CAPACIT	CEJA100M25
C206, 207	CERAMIC CAPACITOR	CKDYX473M25
C208	ELECTROLYTIC CAPACIT	CEJA100M25
RESISTORS		
VR102	VARIABLE (10k−X1)	ACS1025
	Other resistors	RD1/8PM□□□J
OTHERS		
	JACK (MIC)	AKN1017

⊙ DISPLAY ASSEMBLY (AWZ3136)

SEMICONDUCTORS		
Q103−105	TRANSISTOR	RN2201
Q124−126	TRANSISTOR	RN2201
Q127	TRANSISTOR	2SA1048
D102, 103	LED	AEL1058
D105, 106	LED	AEL1003
D107, 109	LED (RED)	AEL1108
D110, 111	LED (RED)	AEL1108
D112, 113	LED	AEL1100
D116	LED	AEL1100
D124	DIODE	1SS252
D131, 133	LED	AEL1058
D136	LED (RED, AMBER)	AEL1101
SWITCHES		
S101−106	SWITCH	ASG1034
S109−115	SWITCH	ASG1034
RESISTORS		
	All resistors	RD1/8PM□□□J
OTHERS		
	REMOTE RECEIVER UNIT	AUX1010

SP TERMINAL ASSEMBLY

COILS		
L751−754	COIL	ATH−133
RESISTORS		
	All resistors	RD1/4PMFL100J
OTHERS		
	PIN JACK (2P)	AUB1146
	SPEAKER TERMINAL 4P	AUE1026

Mark No.	Description	Parts No.
TRANS CONNECT ASSEMBLY		
CAPACITORS		
C152	MYLOR FILM CAPACITOR	CQMA103K50
C153	MYLOR FILM CAPACITOR	CQMA103K250
C154	MYLOR FILM CAPACITOR	CQMA103K50

Mark No.	Description	Parts No.
OTHERS		
CN102	CONNECTOR (15P)	KPE15
CN103	CONNECTOR (9P)	KPE9
	PIN JACK (4P)	AKB1101
	PIN JACK (4P)	AKB1124
X101	CERAMIC RESONATOR	ASS1025

⊙ FUNCTION ASSEMBLY (AWZ3377)

Mark No.	Description	Parts No.
SEMICONDUCTORS		
IC101	LOGIC IC	MC14052BCP
IC102	OP−AMP IC	M5218ALF
IC105	AMP CONTROL μ−COM.	PD5144B
IC401	OP−AMP IC	M5218AL
Q101, 102	TRANSISTOR	2SC2878
Q106	TRANSISTOR	RN1201
Q107	TRANSISTOR	RN2201
D114, 115	DIODE	1SS252
D125, 126	DIODE	1SS252
COIL		
L101	AXIAL INDUCTOR	LAU220K
CAPACITORS		
C108, 109	CERAMIC CAPACITOR	CCDSL101J50
C111	ELECTROLYTIC CAPACIT	CEJA470M16
C112	ELECTR.CAPACITOR	CEAS221M10
C113	ELECTROLYTIC CAPACIT	CEJA100M25
C114−116	CERAMIC CAPACITOR	CKDYX473M25
C118	CERAMIC CAPACITOR	CCDSL101J50
C123, 124	ELECTROLYTIC CAPACIT	CEJA330M25
C157	ELECTROLYTIC CAPACIT	CEAS471M6
C158−160	CERAMIC CAPACITOR	CKDYX473M25
C200	CERAMIC CAPACITOR	CKDYX473M25
C401, 402	CERAMIC CAPACITOR	ACG1017
C403, 404	ELECTR.CAPACITOR	CEAS100M50
C405, 406	CERAMIC CAPACITOR	CKDYB562K50
C407, 408	CERAMIC CAPACITOR	CKDYB152K50
C409, 410	ELECTR.CAPACITOR	CEAS470M10
RESISTORS		
R148	RESISTOR ARRAY (10k)	RA4T104J
R152	RESISTOR ARRAY (100k)	RA5T104J
R160	RESISTOR ARRAY (100k)	RA5T104J
	Other resistors	RD1/8PM□□□J

H.P. ASSEMBLY

Mark No.	Description	Parts No.
RESISTORS		
R755, 756	METAL OXIDE RESISTOR	RS2LMF331J
OTHERS		
CN	JACK	AKN1025

⊙ AF ASSEMBLY (AWZ3385)

Mark No.	Description	Parts No.
SEMICONDUCTORS		
IC108	AUDIO IC	STK4172−2GP
IC451	OP−AMP IC	NJM4558S−X
IC701	IC PROTECTOR	ICP−N25
IC801, 802	IC PROTECTOR	ICP−N38
IC803	REGURATOR IC	M5290P
Q108	TRANSISTOR	RN2203
Q120	TRANSISTOR	2SD438
Q451	TRANSISTOR	2SC2458
Q452	TRANSISTOR	2SD438
Q801	TRANSISTOR	2SB1274
Q802	TRANSISTOR	2SD1913
Q804−810	TRANSISTOR	2SC2458
Q811	TRANSISTOR	2SA1048
Q812	TRANSISTOR	2SC2458
Q813	TRANSISTOR	RN2203
Q814	TRANSISTOR	2SC2458
D120, 121	DIODE	1SS252
D123	ZENER DIODE	RD20ESB
D201	DIODE	1SS252
D451, 452	DIODE	1SS252
D453−456	ZENER DIODE	RD3.0ESB2
D801	DIODE	RBV602
D802	DIODE	RB152
D806, 807	DIODE	10E2FD
D811	ZENER DIODE	RD7.5ESB
D812. 813	ZENER DIODE	RD6.2ESB3
D814−817	ZENER DIODE	RD12ESB3
D818	DIODE	1SS252
D819	ZENER DIODE	RD6.2ESB
D820	DIODE	1SS252

Mark No.	Description	Parts No.
RELAIES		
RY801	RELAY	ASR1027
RY802, 803	RELAY	ASR−111
CAPACITORS		
C139	ELECTR.CAPACITOR	CEAS470M50
C151	CERAMIC CAPACITOR	CKPUYY103M16
C701, 702	ELECTR.CAPACITOR	CEHAQ100M50
C703, 704	CERAMIC CAPACITOR	CKDYB272K50
C705, 706	ELECTROLYTIC CAPACIT	CEHAQ470M50
C707−710	MYLOR FILM CAPACITOR	CQMA104K50
C711, 712	ELECTROLYTIC CAPACIT	CEHAQ100M50
C714	ELECTROLYTIC CAPACIT	CEHAQ101M25
C715	ELECTR.CAPACITOR	ACH1141
C716	ELECTROLYTIC CAPACIT	ACH1143
C717	ELECTROLYTIC CAPACIT	CEHAQ101M25
C801, 802	ELECTROLYTIC CAPACIT	ACH1140
C803	ELECTR.CAPACITOR	CEAS222M16
C804	ELECTR.CAPACITOR	CEAS102M16
C805, 806	ELECTROLYTIC CAPACIT	CEHAQ101M10
C807	ELECTROLYTIC CAPACIT	CEHAQ222M25
C810, 811	ELECTROLYTIC CAPACIT	CEHAQ470M50
C812	ELECTR.CAPACITOR	CEAS100M50
C813	ELECTROLYTIC CAPACIT	CEHAQ100M50
C814	ELECTR.CAPACITOR	CEAS221M10
C815	ELECTR.CAPACITOR	CEAS2R2M50
C816	ELECTR.CAPACITOR	CEAS101M50
C819	ELECTR.CAPACITOR	CEAS100M50
RESISTORS		
R258	CARBON FILM RESISTOR	RD1/4PM182J
R259	METAL OXIDE RESISTOR	RS2LMF220J
R451	METALFILM RESISTER	RN1/4PC2702F
R452	METALFILM RESISTER	RN1/4PC8201F
R453	METALFILM RESISTER	RN1/4PC1202F
R454	METALFILM RESISTER	RN1/4PC1001F
R461, 462	METAL OXIDE RESISTOR	RS2LMF221J
R705, 706	CARBON FILM RESISTOR	RD1/4PM563J
R707, 708	CARBON FILM RESISTOR	RD1/4PM511J
R709, 710	CARBON FILM RESISTOR	RD1/4PMFL4R7J
R712, 713	CARBON FILM RESISTOR	RD1/2PM332J
R714	CARBON FILM RESISTOR	RD1/4PMFL101J
R715	CARBON FILM RESISTOR	RD1/4PM112J
R716	CARBON FILM RESISTOR	RD1/4PMFL101J
R717, 718	CARBON FILM RESISTOR	RD1/2PM332J
R719	CARBON FILM RESISTOR	RD1/4PMFL102J
R801, 802	METAL OXIDE RESISTOR	RS2LMFR22J
R806	CARBON FILM RESISTOR	RD1/2PMFL123J
R807, 808	FUSIBLE RESISTOR	RFA1/4PS470J
R809	METAL OXIDE RESISTOR	RS3LMF471J
R811	METAL OXIDE RESISTOR	RS2LMF471J
R814	METAL OXIDE RESISTOR	RS2LMF471J
	Other resistors	RD1/8PM□□□J
OTHERS		
CN104	CONNECTOR (6P)	KPE6
CN105	CONNECTOR (14P)	KPE14
CN107	CONNECTOR (7P)	KPC7
CN109	CONNECTOR (9P)	KPE9
CN501	SOCKET (14P)	AKP1074
CN502	SOCKET (15P)	AKP1075
CN503	SOCKET (9P)	AKP1072
TH451	THERMISTOR	NTH2218F

TRANS PRIMARY ASSEMBLY

SEMICONDUCTORS		
Q109	TRANSISTOR	RN1201
D122	DIODE	1SS252
RELAY		
RY105	RELAY	ASR1027
OTHERS		
⚠	AC SOCKET (1−P)	AKP1034

Mark No.	Description	Parts No.
VOLUME ASSEMBLY		
SEMICONDUCTORS		
IC110	IC	UPC4570C
IC111	MECHANISM DRIVER IC	TA7291S
IC112	OP−AMP IC	RC4558DXP
Q118, 119	TRANSISTOR	2SC2878
Q128	TRANSISTOR	2SC2878
CAPACITORS		
C121	ELECTROLYTIC CAPACIT	CEHAQ2R2M50
C132, 133	ELECTROLYTIC CAPACIT	CEHAQ2R2M50
C134, 135	ELECTR.CAPACITOR	CEHAQ100M50
C138	CERAMIC CAPACITOR	CKDYX104M25
C155, 156	CERAMIC CAPACITOR	CKDYX473M25
RESISTORS		
VR101	VR	ACX1047
	Other resistors	RD1/8PM□□□J
TRANS COVER ASSEMBLY		
No parts are supplied with the TRANS COVER Assembly.		

4.2 FOR A−P510/HE TYPE

Mark No.	Description	Parts No.
⊙ DISPLAY ASSEMBLY (AWZ3135)		
SEMICONDUCTORS		
Q103, 104	TRANSISTOR	RN2201
Q124, 126	TRANSISTOR	RN2201
Q127	TRANSISTOR	2SA1048
D101, 102	LED	AEL1058
D104	LED	AEL1058
D107	LED (RED)	AEL1108
D108	LED	AEL1100
D109−111	LED (RED)	AEL1108
D132	LED	AEL1058
D134, 135	LED	AEL1100
SWITCHES		
S101	SWITCH	ASG1034
S103−106	SWITCH	ASG1034
S109	SWITCH	ASG1034
S111−115	SWITCH	ASG1034
RESISTORS		
R186, 187	CARBON FILM RESISTOR	RD1/4PM131J
	Other resistors	RD1/8PM□□□J
OTHERS		
	REMOTE RECEIVER UNIT	AXX1010
SP TERMINAL ASSEMBLY		
COILS		
L751, 752	COIL	ATH−133
RESISTORS		
R757, 758	CARBON FILM RESISTOR	RD1/4PMFL100J
OTHERS		
	PIN JACK (2P)	AKB1146
	SPEAKER TERMINAL 4−P	AKE1026
TRANS CONNECT ASSEMBLY		
CAPACITORS		
C152	MYLOR FILM CAPACITOR	CQMA103K50
C153	MYLOR FILM CAPACITOR	CQMA103K250
C154	MYLOR FILM CAPACITOR	CQMA103K50

Mark No.	Description	Parts No.
⊙ FUNCTION ASSEMBLY (AWZ3375)		
SEMICONDUCTORS		
IC101	LOGIC IC	MC14052BCP
IC102	OP−AMP IC	M5218ALF
IC105	AMP CONTROL μ−COM.	PD5144B
IC401	OP−AMP IC	M5218AL
Q101, 102	TRANSISTOR	2SC2878
Q106	TRANSISTOR	RN1201
Q107	TRANSISTOR	RN2201
D114, 115	DIODE	1SS252
D117	DIODE	1SS252
D118	ZENER DIODE	RD2.4ESB2
D119, 125	DIODE	1SS252
D126, 201	DIODE	1SS252
COIL		
L101	AXIAL INDUCTOR	LAU220K
CAPACITORS		
C108, 109	CERAMIC CAPACITOR	CCDSL101J50
C111	ELECTROLYTIC CAPACIT	CEJA470M16
C112	ELECTR.CAPACITOR	CEAS221M10
C113	ELECTROLYTIC CAPACIT	CEJA100M25
C114, 115	CERAMIC CAPACITOR	CKDYX473M25
C116	CERAMIC CAPACITOR	CKDYF103Z50
C118	CERAMIC CAPACITOR	CCDSL101J50
C123, 124	ELECTROLYTIC CAPACIT	CEJA330M25
C155, 156	CERAMIC CAPACITOR	CKDYX473M25
C157	ELECTROLYTIC CAPACIT	CEAS471M6
C158, 200	CERAMIC CAPACITOR	CKDYX473M25
C401, 402	CERAMIC CAPACITOR	ACG1017
C403, 404	ELECTR.CAPACITOR	CEAS100M50
C405, 406	CERAMIC CAPACITOR	CKDYB562K50
C407, 408	CERAMIC CAPACITOR	CKDYB152K50
C409, 410	ELECTR.CAPACITOR	CEAS470M10
RESISTORS		
R148	RESISTOR ARRAY (10k)	RA4T104J
R152, 160	RESISTOR ARRAY (100k)	RA5T104J
	Other resistors	RD1/8PM□□□J

Mark No.	Description	Parts No.
OTHERS		
	PIN JACK (2P)	AKB1100
	PIN JACK (4P)	AKB1101
CN102	CONNECTOR (15P)	KPE15
CN103	CONNECTOR (9P)	KPE9
X101	CERAMIC RESONATOR	ASS1025
H.P. ASSEMBLY		
RESISTORS		
R755, 756	METAL OXIDE RESISTOR	RS2LMF331J
OTHERS		
CN	JACK (HEAD PHONE)	AKN1025
⊙ AF ASSEMBLY (AWZ3383)		
SEMICONDUCTORS		
IC108	AUDIO IC	STK4172−2GP
IC451	OP−AMP IC	NJM4558S−X
IC701	IC PROTECTOR	ICP−N25
IC801, 802	IC PROTECTOR	ICP−N38
IC803	REGURATOR IC	M5290P
Q108	TRANSISTOR	RN2203
Q120	TRANSISTOR	2SD438
Q451	TRANSISTOR	2SC2458
Q452	TRANSISTOR	2SD438
Q801	TRANSISTOR	2SB1274
Q802	TRANSISTOR	2SD1913
Q807−810	TRANSISTOR	2SC2458
Q811	TRANSISTOR	2SA1048
Q812	TRANSISTOR	2SC2458
Q813	TRANSISTOR	RN2203
Q814	TRANSISTOR	2SC2458
D120, 121	DIODE	1SS252
D123	ZENER DIODE	RD20ESB
D451, 452	DIODE	1SS252
D453−456	ZENER DIODE	RD3.0ESB2
D801	DIODE	RBV602
D802	DIODE	RB152
D806, 807	DIODE	10E2FD
D811	ZENER DIODE	RD7.5ESB
D816, 817	ZENER DIODE	RD12ESB3
D818	DIODE	1SS252
D819	ZENER DIODE	RD6.2ESB
D820	DIODE	1SS252

Mark No.	Description	Parts No.
RELAY		
RY803	RELAY	ASR−111
CAPACITORS		
C139	ELECTR.CAPACITOR	CEAS470M50
C151	CERAMIC CAPACITOR	CKPUYY103M16
C701, 702	ELECTR.CAPACITOR	CEHAQ100M50
C703, 704	CERAMIC CAPACITOR	CKDYB272K50
C705, 706	ELECTROLYTIC CAPACIT	CEHAQ470M50
C707−710	MYLOR FILM CAPACITOR	CQMA104K50
C711, 712	ELECTROLYTIC CAPACIT	CEHAQ100M50
C714	ELECTROLYTIC CAPACIT	ACH1186
C715	ELECTR.CAPACITOR	CEANP100M50
C716	ELECTROLYTIC CAPACIT	CEANP470M50
C717	ELECTROLYTIC CAPACIT	CEANP101M25
C801, 802	ELECTROLYTIC CAPACIT	ACH1109
C803	ELECTR.CAPACITOR	CEAS222M16
C804	ELECTR.CAPACITOR	CEAS102M16
C805, 806	ELECTROLYTIC CAPACIT	CEHAQ101M10
C807	ELECTROLYTIC CAPACIT	CEHAQ222M25
C810, 811	ELECTROLYTIC CAPACIT	CEHAQ470M50
C812, 813	ELECTR.CAPACITOR	CEHAQ100M50
C814	ELECTROLYTIC CAPACIT	CEHAQ221M10
C815	ELECTR.CAPACITOR	CEAS2R2M50
C816	ELECTR.CAPACITOR	CEHAQ101M50
C819	ELECTR.CAPACITOR	CEHAQ100M50
RESISTORS		
R258	CARBON FILM RESISTOR	RD1/4PM182J
R259	METAL OXIDE RESISTOR	RS2LMF220J
R451	METALFILM RESISTER	RN1/4PC2702F
R452	METALFILM RESISTER	RN1/4PC8201F
R453	METALFILM RESISTER	RN1/4PC1202F
R454	METALFILM RESISTER	RN1/4PC1001F
R461, 462	METAL OXIDE RESISTOR	RS2LMF221J
R705, 706	CARBON FILM RESISTOR	RD1/4PM563J
R707, 708	CARBON FILM RESISTOR	RD1/4PM511J
R709, 710	CARBON FILM RESISTOR	RD1/4PMFL4R7J
R712, 713	CARBON FILM RESISTOR	RD1/4PM332J
R714	CARBON FILM RESISTOR	RD1/4PMFL101J
R715	CARBON FILM RESISTOR	RD1/4PM112J
R716	CARBON FILM RESISTOR	RD1/4PMFL101J
R717, 718	CARBON FILM RESISTOR	RD1/4PM332J
R719	CARBON FILM RESISTOR	RD1/4PMFL102J
R801, 802	METAL OXIDE RESISTOR	RS2LMFR22J
R806	CARBON FILM RESISTOR	RD1/2PMFL123J
R807, 808	FUSIBLE RESISTOR	RFA1/4PS470J
R814	METAL OXIDE RESISTOR	RS2LMF331J
	Other resistors	RD1/8PM□□□J
OTHERS		
CN105	CONNECTOR (14P)	KPE14
CN107	CONNECTOR (7P)	KPC7
CN109	CONNECTOR (9P)	KPE9
CN501	SOCKET (14P)	AKP1074
CN502	SOCKET (15P)	AKP1075
CN503	SOCKET (9P)	AKP1072
TH451	THERMISTOR	NTH2218F

TRANS PRIMARY ASSEMBLY

SEMICONDUCTORS		
Q109	TRANSISTOR	RN1201
D122	DIODE	1SS252
RELAY		
RY105	RELAY	ASR1027
OTHERS		
⚠	AC SOCKET 1−P	AKP1034

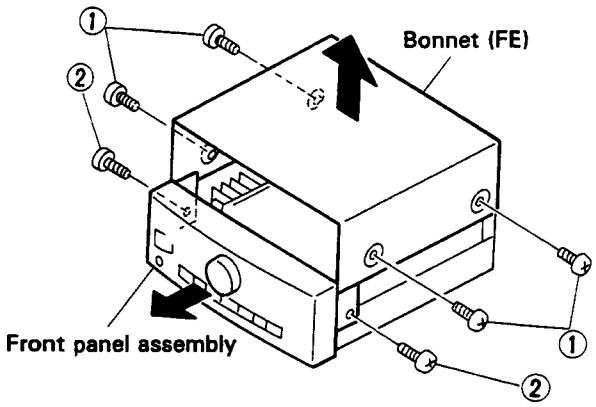
Mark No.	Description	Parts No.
VOLUME ASSEMBLY		
SEMICONDUCTORS		
IC110	IC	UPC4570C
IC111	MECHANISM DRIVER IC	TA7291S
IC112	OP−AMP IC	RC4558DXP
Q118, 119	TRANSISTOR	2SC2878
CAPACITORS		
C121	ELECTROLYTIC CAPACIT	CEHAQ2R2M50
C132, 133	ELECTROLYTIC CAPACIT	CEHAQ2R2M50
C134, 135	ELECTR.CAPACITOR	CEHAQ100M50
C138	CERAMIC CAPACITOR	CKDYX104M25
C159, 160	CERAMIC CAPACITOR	CKDYX473M25
RESISTORS		
VR101	VR	ACX1047
	CARBONFILM RESISTOR	RD1/8PM□□□J

TRANS COVER ASSEMBLY

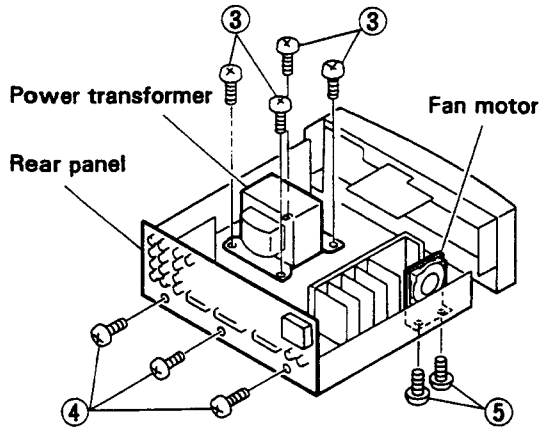
No parts are supplied with the TRANS COVER Assembly.

5. DISASSEMBLY

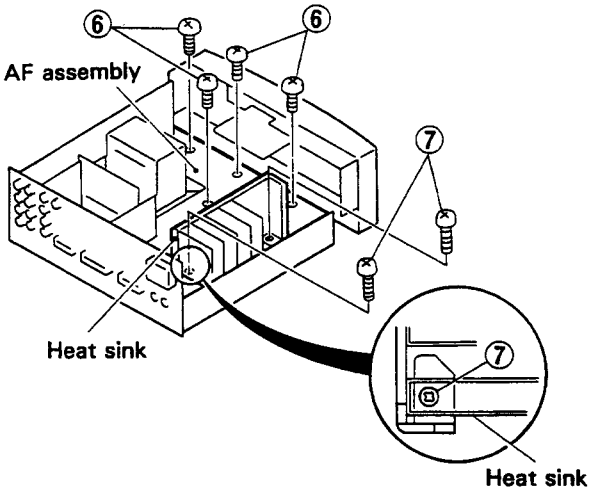
1. Remove the bonnet case (FE) (four screws ①).
2. Remove the front panel assembly (two screws ②).



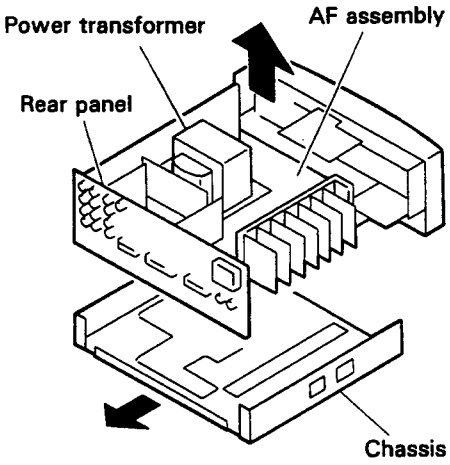
3. Remove the mounting screws of the power transformer (four screws ③).
4. Remove the mounting of screws of the rear panel (three screws ④).
5. Remove the mounting of screws of the fan motor (two screws ⑤).



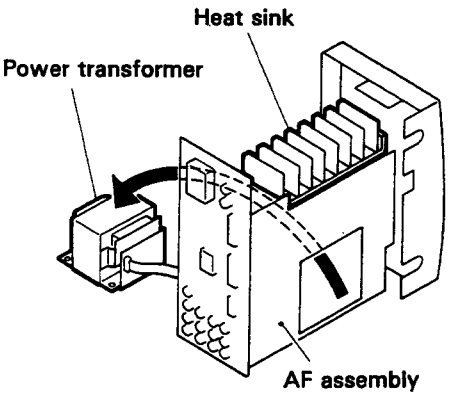
6. Remove the mounting screws of the AF assembly (four screws ⑥).
7. Remove the mounting of screws of the heat sink (two screws ⑦).



8. Remove the transformer and rear panel from the chassis by lifting them up.



9. Pull the transformer from the AF assembly, and turn and set the main unit so that the heat sink is on the top side.



6. IC INFORMATION

• PD5144B (MICRO COMPUTER)

• Pin Function

No.	Pin name	I/O	Estab-lishment	Function
1	+5V	—	—	Connected to +5V Power supply
2	GND	—	—	GND
3	VOLref	—	—	Connected to +5V Power supply
4	FAN ON	O	O	Not used
5	LINE.M	O	N	LINE MUTE
6	A4052A	O	N	AUDIO FUNCTION 4052 A
7	A4052B	O	N	AUDIO FUNCTION 4052 B
8	V4052A	O	N	Not used
9	V4052B	O	N	Not used
10	V.A.M	I/O	N	AUDIO MUTE for VCR/DAT REC OUT
11	P.BASS	I/O	N	P−BASS ON/OFF (A−P510 only)
12	VOL.POSI	I/O	I	Analog input for detection of VR position
13	VOL.DN	I/O	N	Motor VR control (DOWN)
14	VOL.UP	I/O	N	Motor VR control (UP)
15	R.V.ST	I/O	N	Not used
16	R.V.CLK	I/O	N	Not used
17	R.V.DATA	I/O	N	Not used
18	E/R TX	I/O	N/I	SYSTEM BUS EN/REQ (TUNER)
19	E/R GR	I/O	N/I	SYSTEM BUS EN/REQ (GEQ and D.S.P.)
20	E/R CT	I/O	N/I	SYSTEM BUS EN/REQ (TAPE)
21	E/R CD	I/O	N/I	SYSTEM BUS EN/REQ (CD)
22	S.DATA	I/O	N/I	SYSTEM BUS DATA
23	S.CLK	I/O	N	SYSTEM BUS CLOCK
24	PHONE	I/O	I	PHONE presence/absence
25	MIC.M	I/O	N	MIC MUTE
26	RMT IN	I	—	REMOTE CONTROL input
27	GND	—	—	GND
28	RESET	I	—	RESET input
29	X IN	I	—	Connected to ceramic oscilator (4MHz)
30	X OUT	O	—	
31	N.C.	O	—	Not used
32	GND	—	—	GND
33	4/3.2	I	I	Switching Destination
34	3.4/2	I	I	Switching Destination
35	J/EX	I	I	Switching Destination
36	KI 5	I	I	KEY SCAN Input
37	KI 4	I	I	KEY SCAN Input
38	KI 3	I	I	KEY SCAN Input
39	KI 2	I	I	KEY SCAN Input
40	KI 1	I	I	KEY SCAN Input
41	LED PHONO	I/O	N	LED PHONO
42	LED LD	I/O	N	LED LD (A−P710 only)
43	LED VCR/DAT	I/O	N	LED VCR/DAT
44	LED CT	I/O	N	LED TAPE
45	LED TX	I/O	N	LED TUNER
46	LED CD	I/O	N	LED CD
47	LED PILLOW	I/O	N	LED PILLOW (A−P710 only)
48	LED P.BASS	I/O	N	LED P−BASS
49	KO3	I/O	N	KEY SCAN Output
50	KO2	I/O	N	KEY SCAN Output
51	KO1	I/O	N	KEY SCAN Output
52	LED AUDI	I/O	N	LED VOCAL CANCEL
53	LED AI B	I/O	N	LED B
54	LED AI A	I/O	N	LED A
55	POW IN	I/O	I	POWER IN
56	FAN ERR	I/O	I	FAN ERR
57	LED SURR	I/O	O	LED SURROUND
58	FAN IN	I/O	I	FAN IN
59	RELAY D	I/O	O	Not used
60	RELAY C	I/O	O	Not used
61	RELAY B	I/O	O	RELAY B (A−P710 only)
62	RELAY A	I/O	O	RELAY A
63	BACK UP	I/O	I	BACK UP
64	POWER	I/O	O	POWER

I : CMOS Input
O : CMOS Output
N : N ch open drain output

7. FOR A−P710/HB AND A−P510/HB TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The A−P710/HB type is the same as the A−P710/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		A−P710/HE type	A−P710/HB type	
	TRANS PRIMARY assembly	Non supply	Non supply	*1
⚠	FU1 Fuse (T1.25A/250V)	AEK−510	AEK−509	
⚠	FU5, FU6 Fuse (T2.5A/250V)	AEK−403	AEK−512	
⚠	FU3, FU4 Fuse (T2A/250V)	AEK−017	AEK−511	
⚠	AC Power cord	ADG1019	ADG1084	
	Screw	ABA1018	.....	

The A−P510/HB type is the same as the A−P510/HE type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		A−P510/HE type	A−P510/HB type	
	TRANS PRIMARY assembly	Non supply	Non supply	*1
⚠	FU5, FU6 Fuse (T2.5A/250V)	AEK−403	AEK−512	
⚠	FU3, FU4 Fuse (T2A/250V)	AEK−017	AEK−511	
⚠	AC Power cord	ADG1019	ADG1084	

*1 : A−P710/HE and A−P510/HE of the TRANS PRIMARY assembly are identical assemblies.
A−P710/HB and A−P510/HB of the TRANS PRIMARY assembly are also identical assemblies.

TRANS PRIMARY assembly

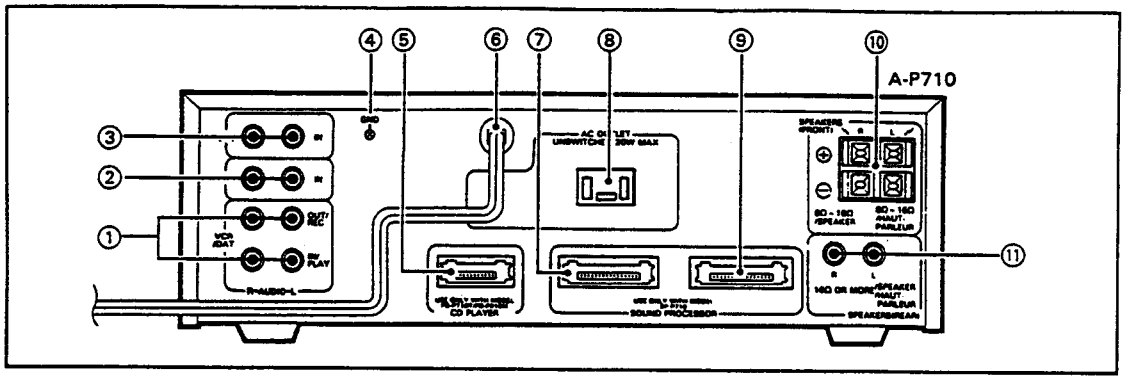
The TRANS PRIMARY assembly (A−P710/HB and A−P510/HB) is the same as the TRANS PRIMARY assembly (A−P710/HE and A−P510/HE) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		HE type	HB type	
⚠	AC socket (OUTLET 1P)	AKP1034	AKP1035	

8. PANEL FACILITIES

REAR PANEL FACILITIES

STEREO AMPLIFIER: A-P710/A-P510



① VCR/DAT jacks

IN/PLAY:

Connect to the audio output jacks of VCR (DAT).

OUT/REC:

Connect to audio input jacks of VCR (DAT).

② LD input jacks (A-P710 only)

Connect to audio output Jacks of LD player.

③ PHONO input jacks

Connect the output cable of the turntable to these jacks.

④ Ground terminal (GND)

Use a screwdriver to connect with the ground terminal.

⑤ CD PLAYER jack (blue)

Connect the CD system cable (blue) here.

⑥ Power cord

Connect this to the AC wall socket.

⑦ SOUND PROCESSOR jack (white) A-P710
SOUND IMAGE CONTROLLER jack (white) A-P510

Connect the SOUND FIELD PROCESSOR (or SOUND IMAGE CONTROLLER) system cable (white) here.

⑧ AC OUTLET (UNSWITCHED 20W MAX)

Power supplied through this outlet is turned on and off by the amplifier's POWER switch. Total electrical power consumption of connected equipment should not exceed 20W. This power outlet is provided for exclusive use with the tuner F-P710(L) only. This power outlet must not be used to provide electricity to any other component or appliance.

NOTE:

In order to avoid overheating or fire risk, do not connect appliances with high power consumption such as heaters, irons, or television sets to the AC OUTLET. This can cause the amplifier to malfunction.

⑨ SOUND PROCESSOR jack (green) A-P710
SOUND IMAGE CONTROLLER jack (green) A-P510

Connect the SOUND FIELD PROCESSOR (or SOUND IMAGE CONTROLLER) system cable (green) here.

⑩ SPEAKERS (FRONT) terminals

L: Connect the left speaker system as seen from the listening position.

R: Connect the right speaker system as seen from the listening position.

NOTE:

Connect a speaker system with a nominal impedance ranging from 8Ω to 16Ω.

⑪ SPEAKERS (REAR) jack

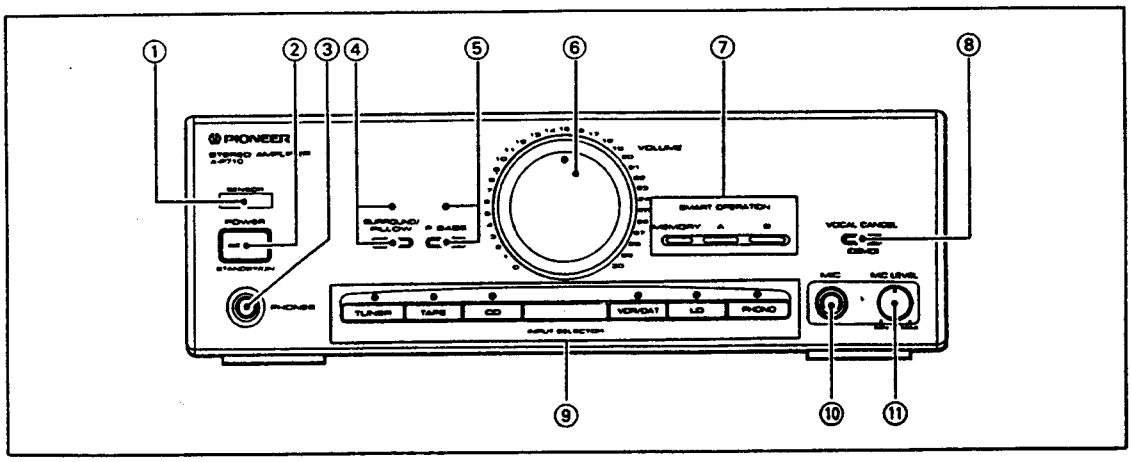
Connect the surround speaker systems.

NOTE:

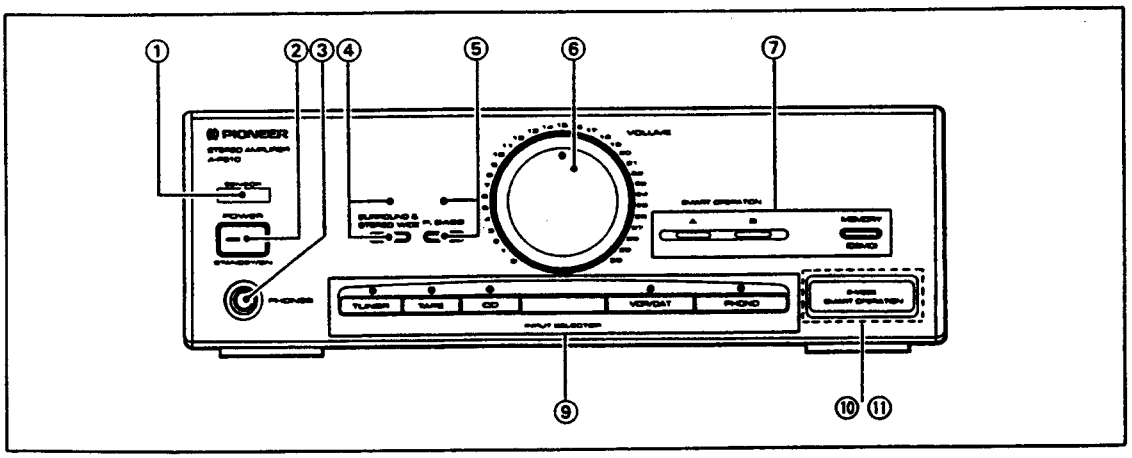
Connect a speaker system with a nominal impedance of 16Ω or more.

FRONT PANEL FACILITIES

STEREO AMPLIFIER: A-P710



STEREO AMPLIFIER: A-P510



① REMOTE SENSOR window

② POWER STANDBY/ON switch

This is the switch for electric power.

ON: When set to the ON position, power is supplied and the unit becomes operational.

STANDBY: When set to the STANDBY position, the main power flow is cut and the unit is no longer fully operational. A minute flow of power feeds the unit to maintain operation readiness.

The tuner section display indicates only the time.

③ PHONES (Headphone) jack

For stereo headphones.

NOTE:
There is no speaker output when headphones are plugged into the PHONES jack.

④ SURROUND/PILLOW button and indicator (A-P710 only)

This button allows one-touch switching between the surround speakers and front speakers. The indicator lights orange when SURROUND is selected, and red when PILLOW is selected. When PILLOW is selected, no sound is output from the front speakers.

④ SURROUND & STEREO WIDE button and indicator (A-P510 only)

Use this button to select "surround & stereo wide" or normal listening conditions. When surround speakers are connected, the unit switches automatically to "surround" effect, and it switches to "stereo wide" effect if surround speakers are not connected.

⑤ P. BASS button and indicator

Set to ON to augment bass frequency response.

⑥ VOLUME control

⑦ SMART OPERATION buttons

A, B: To operate the SMART OPERATION function and set the data.
MEMORY: To set the data for SMART OPERATION.

⑧ VOCAL CANCEL button (A-P710 only)

When set to ON, the sound volume of vocal sounds is lowered. The sound field processor's SOUND JOG control can also be used to set the vocal volume to the lowest level.

⑨ INPUT SELECTOR buttons

TUNER: Press to listen to radio broadcasts.
TAPE: Press to listen to cassette tapes.
CD: Press to listen to a CD player.
PHONO: Press to play records on a turntable connected to the PHONO jacks.
LD: Press to play a LaserDisc player connected to the LD jacks (A-P710 only).
VCR/DAT: Press to play a tape on a video cassette recorder (or DAT) connected to the VCR/DAT jacks.

⑩ MIC (Microphone) jack (A-P710 and A-P510 (multi-voltage model) only)

⑪ MIC LEVEL control (A-P710 and A-P510 (multi-voltage model) only)

9. SPECIFICATIONS

STEREO AMPLIFIER: A-P710

Amplifier Section

Continuously Average Power Output is 32 Watts* per channel, min., at 8 ohms from 40 Hertz to 20,000 Hertz, with no more than 0.9% total harmonic distortion

> * Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers

Continuous power output (DIN)
- U.K., European models ..... 40 W +40 W (1 kHz, T.H.D 1%, 8 ohms)

Continuous power output (RMS)
- U.K., European models ..... 46 W +46 W (1 kHz, T.H.D 5%, 8 ohms)
- Multi-voltage models ..... 40 W +40 W (1 kHz, T.H.D 5%, 8 ohms)

Music power (DIN)
- U.K., European models ..... 68 W +68 W (1 kHz, T.H.D 10%, 8 ohms)
- Multi-voltage models ..... 58 W +58 W (1 kHz, T.H.D 10%, 8 ohms)

Peak music power
(Multi-voltage models only) ..... 305 W
Total harmonic distortion,
1 kHz, 20 W, 8 ohms 0.2%*

Electrical Section, Other

Power requirements
- European models ..... AC 220 V, 50/60 Hz
- U.K., models ..... AC 240 V, 50/60 Hz
- Multi-voltage models ..... AC 110/120–127/220/240 V (switchable), 50/60 Hz

Power consumption
- European model ..... 180 W
- Multi-voltage model ..... 190 W

AC outlet ..... Switched: 20 W or less (for exclusive use with F-P710 (L)).
External dimensions .....
260 (W) × 83.5 (H) × 260 (D) mm
10-3/16 (W) × 3-1/4 (H) × 10-3/16 (D) in
Weight ..... 4.0 kg (8 lb 13 oz.)

* Measured with audio spectrum analyzer.

STEREO AMPLIFIER: A-P510

Amplifier Section

Continuously Average Power Output is 32 Watts* per channel, min., at 8 ohms from 40 Hertz to 20,000 Hertz, with no more than 0.9% total harmonic distortion

> * Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers

Continuous power output (DIN)
- U.K., European models ..... 35 W +35 W (1 kHz, T.H.D 1%, 8 ohms)

Continuous power output (RMS)
- U.K., European models ..... 39 W +39 W (1 kHz, T.H.D 5%, 8 ohms)
- U.S., Canadian models ..... 38 W +38 W (1kHz, T.H.D 5%, 8 ohms)
- Multi-voltage models ..... 40 W +40 W (1 kHz, T.H.D 5%, 8 ohms)

Music power (DIN)
- U.K., European models ..... 57 W +57 W (1 kHz, T.H.D 10%, 8 ohms)
- Multi-voltage models ..... 58 W +58 W (1,kHz, T.H.D 10%, 8 ohms)

Peak music power
(Multi-voltage models only) ..... 305 W
Total harmonic distortion,
1 kHz, 17.5 W, 8 ohms 0.2%*

Electrical Section, Other

Power requirements
- European models ..... AC 220 V, 50/60 Hz
- U.K., models ..... AC 240 V, 50/60 Hz
- U.S., Canadian models ..... AC 120 V, 60 Hz
- Multi-voltage models ..... AC 110/120–127/220/240 V (switchable), 50/60 Hz

Power consumption
- European model ..... 170 W
- U.S., Canadian models ..... 115 W
- Multi-voltage model ..... 190 W

AC outlet ..... Switched: 20 W or less (for exclusive use with F-P710 (L)).
External dimensions .....
260 (W) × 83.5 (H) × 260 (D) mm
10-3/16 (W) × 3-1/4 (H) × 10-3/16 (D) in
Weight ..... 3.9 kg (8 lb 9 oz.)

* Measured with audio spectrum analyzer.

NOTE:
The specifications and design of this product are subject to change without notice, due to improvements.